
Install and configure IP Trunk 3.0 node

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This chapter describes how to add a new IP Trunk 3.0 trunk node in OTM, how to install the IP trunk cards and cables, and how to configure and transmit the node properties.

Before you begin

Follow the steps in Procedure 5 to ensure that installation requirements are met.

Procedure 5

Meeting installation requirements

- 1** Install OTM 2.0 (or later). Make sure the ITG ISDN IP Trunk and Alarm Management applications are installed.
- 2** Upgrade Meridian 1 software to Release 25A or later. IP Trunk 3.0 requires packages 145 (ISDN) and 147 (ISL). Install additional software packages, such as Package 148 NTKW, as required for advanced ISDN features.
- 3** Verify that required LAN and WAN networking equipment and cables are installed. For networking equipment requirements, refer to "ITG Engineering Guidelines" on page 107. The IP trunk card requires shielded cables.
- 4** The Succession Media Card 32-port trunk card (NTVQ90BA) or ITG-Pentium 24 port trunk card (NT0961AA), DCHIP PC Card (NTWE07), and cable assemblies required for the site are available.
- 5** For Meridian 1 Large systems, have the ITG ISL (NT6D80). For Meridian 1 Small systems, IP Trunk 3.0 requires at least one available port on an SDI/DCH card (minimum vintage NTAK02BB). Ensure D-channel cards have required cables.
- 6** Verify that the customer site has a Nortel Networks Netgear RM356 Modem Router (or equivalent) on the ELAN. The modem router provides remote support access to IP Trunk 3.0 and other IP-enabled Nortel Networks products on the Meridian 1 site. See Appendix E on page 585 for more information on routers.

End of Procedure

Installation Procedure Summary

Table 35 lists the procedures required to install and configure an IP Trunk 3.0 node. Complete all installation and configuration tasks before transmitting the configuration data to the IP trunk cards.

Table 35
Installation procedures (Part 1 of 3)

Step	Procedure	Page
1	Create the IP Trunk 3.0 Installation Summary Sheet.	page 228
2	Install and cable IP Trunk 3.0 cards. Card installation procedure	page 239 page 239
3	Configure IP Trunk 3.0 data on the Meridian 1. Configure the ISL D-channel on the Meridian 1 for the DCHIP card for IP Trunk 3.0. Configure ISDN feature in Customer Data Block. Configure Succession Media Card 32-port and ITG-Pentium 24-port trunk cards and units. Configure dialing plans within the corporate network. Disable the Succession Media Card 32-port and ITG-Pentium 24-port trunk cards.	page 272 page 272 page 277 page 283 page 288 page 295

Table 35
Installation procedures (Part 2 of 3)

Step	Procedure	Page
4	Configure IP Trunk 3.0 data in OTM 2.0.	page 295
	Add an IP Trunk 3.0 node in OTM 2.0 manually.	page 296
	Add an IP Trunk 3.0 node and configure general node properties.	page 296
	Single vs. separate subnets for TLAN and ELAN.	page 298
	Configure card properties.	page 300
	Configure DSP profiles for the IP Trunk 3.0 node.	page 304
	Configure SNMP Traps/Routing and IP addresses tab.	page 309
	Configure Accounting server.	page 311
	Set Security for OTM SNMP access.	page 313
	Exit node property configuration session.	page 314
5	Transmit IP trunk card configuration data from OTM 2.0 to the IP trunk cards.	page 322
	Set the Leader 0 IP address.	page 323
	Transmit the node properties, card properties and dialing plan to Leader 0.	page 328
	Verify installation and configuration.	page 329
	Transmit card properties and dialing plan to Leader 1 and Follower cards.	page 332
6	Set date and time for the IP Trunk 3.0 node.	page 333
7	Change the default ITG shell password to maintain access security.	page 334

Table 35
Installation procedures (Part 3 of 3)

Step	Procedure	Page
8	Check and download IP trunk card software in OTM 2.0. Transmit new software to the IP trunk cards. Upgrade the DCHIP PC Card.	page 338 page 340 page 343
9	Configure OTM Alarm Management to receive SNMP traps from the IP trunk cards.	page 345
10	Make test calls to the remote nodes (ITG Trunk or IP Trunk).	page 347

ESN installation summary

The following is a summary of the actions required to implement ESN:

- In LD 86, provision the ESN block.
 - Enter the maximum numbers of each type of ESN entity.
 - Indicate whether CDP is enabled or disabled.
 - Enter the ESN access codes.
- In LD 86, provision any DGT (Digit manipulation tables) required.
- In LD 86, provision the RLB (Route List Block) RLI (Route List Index) blocks.
 - Add the RLI entries. Do not skip entries, as ESN searches the table from entry zero until the full initial set of entries are scanned to find an available route.
 - Enter the RDB for the entry.
 - Enter the DMI (Digit Manipulation Index), if required.
 - After the last entry is entered, enter the number of entries in the Initial Set (ISET).
- In LD 87, provision the NCTL (Network Control) block.

- In LD 87, provision the CDP (Coordinated Dialing Plan) entries, as required – LSC, DSC, and TSC. Enter the RLI intended for this code.
- In LD 90, provision the NPA, NXX, LOC, SPN, or other entries as required. Enter the RLI intended for this code.

Create the IP Trunk 3.0 Installation Summary Sheet

Compile all necessary data before beginning the configuration process. For example, prepare the following information ahead of time:

- The TN, Management MAC address and card density should be recorded during the Succession 32-port trunk card and ITG-Pentium 24-port installation.
- D-Channel number and CHID should be recorded during the Meridian 1 configuration.
- All ELAN and TLAN IP addresses must be obtained from the System Administrator before beginning OTM configuration.

Create an Installation Summary Sheet. This form contains important information about each card, including the fields listed in Table 36 on page 229.

Table 36
IP Trunk 3.0 Installation Summary Sheet

Site _____ System _____ Customer _____ Node Number _____ TLAN Node IP address _____ TLAN gateway (router) _____ TLAN subnet mask _____ ELAN gateway (router) _____ ELAN subnet mask _____								
TN	Mgmt. MAC (ELAN)	Mgmt. IP (ELAN)	Voice IP (TLAN)	Card role	DCHIP on card	D-Channel	First CHID	Card density
				Leader 0				
				Leader 1				
				Follower				
				Follower				
				Follower				
				Follower				
				Follower				
				Follower				
				Follower				
				Follower				
				Follower				
				Follower				
				Follower				

Channel Identifier planning

The Channel ID must be in sequential order on a card (no gaps in the numbering like 1, 2, 4, 7) and they must increase in number. If this is not done, the card channels are unusable.

Gaps in numbering can deliberately be left between IP trunk cards to allow for later expansion; for example, to allow for later expansion of a ITG-Pentium 24-Port trunk card to a Succession Media Card 32-port trunk card.

Preferred ISL channel numbering

This section gives several examples of ISL Channel ID numbering.

Single card, sequential numbering, no gaps – ITG-Pentium 24-port trunk card

This is an example using an ITG-Pentium 24-port trunk card. The first channel number can be any value, as long as the maximum is less than or equal to the maximum value of the ISL channel number, which is 382. Table 37 maps the unit number to the ISL channel number for a single ITG-Pentium 24-port trunk card.

Table 37
Mapping of unit number to ISL Channel number – one card in system
(Part 1 of 2)

Unit number (from TN)	ISL Channel number
0	1
1	2
2	3
3	4
4	5
5	6
6	7

Table 37
Mapping of unit number to ISL Channel number – one card in system
(Part 2 of 2)

Unit number (from TN)	ISL Channel number
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15
15	16
16	17
17	18
18	19
19	20
20	21
21	22
22	23
23	24

Single card, sequential numbering, no gaps – Succession Media Card 32-port trunk card

This is an example using a Succession Media Card 32-port trunk card. The first channel number can be any value, as long as the maximum is less than or equal to the maximum value of the ISL channel – 382. Table 38 maps the unit number to the ISL channel number for a single Succession Media Card 32-port trunk card.

Table 38
Mapping of unit number to ISL Channel number – one card in system
(Part 1 of 2)

Unit number (from TN)	ISL Channel number
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15
15	16

Table 38

**Mapping of unit number to ISL Channel number – one card in system
(Part 2 of 2)**

Unit number (from TN)	ISL Channel number
16	17
17	18
18	19
19	20
20	21
21	22
22	23
23	24
24	25
25	26
26	27
27	28
28	29
29	30
30	31
31	32

Two cards, sequential numbering, gap left for expansion

This example is for two ITG-Pentium 24-port trunk cards. To allow room for replacement by a Succession Media Card 32-port trunk card at a later date, a gap of eight channels has been left between the cards.

Table 39 maps the unit number to the ISL channel number for a two ITG-Pentium 24-port trunk cards with an eight channel gap between cards. Nortel Networks recommends this configuration as it makes it easy to replace an ITG-Pentium 24-port trunk card with a Succession Media Card 32-port trunk card, without affecting the other card.

If no gap is left in the numbering sequence between the cards, conversion to a Succession Media Card 32-port trunk becomes difficult. The ISL channel numbers on the first card have no room to expand, making it necessary to fully re-provision the second IP trunk card.

Table 39
Mapping of unit number to ISL Channel number – two cards in system and expansion gap (Part 1 of 3)

Unit number (from TN)	ISL Channel number
Card 1	
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12
12	13
13	14

Table 39
Mapping of unit number to ISL Channel number – two cards in system
and expansion gap (Part 2 of 3)

Unit number (from TN)	ISL Channel number
14	15
15	16
16	17
17	18
18	19
19	20
20	21
21	22
22	23
23	24
Card 2	
Card 2 ISL channel numbering starts at 33 (24 numbers from Card 1 + 8 numbers for expansion + first number for Card 2 = $24 + 8 + 1 = 33$).	
0	33
1	34
2	35
3	36
4	37
5	38
6	39
7	40
8	41

Table 39
Mapping of unit number to ISL Channel number – two cards in system and expansion gap (Part 3 of 3)

Unit number (from TN)	ISL Channel number
9	42
10	43
11	44
12	45
13	46
14	47
15	48
16	49
17	50
18	51
19	52
20	53
21	54
22	55
23	56

Incorrect ISL channel numbering plans

This section describes numbering plan errors.

Gaps in ISL channel numbering sequence

Table 40 shows gaps in the ISL numbering plan sequence. A gap between channel numbers causes the IP trunk card to be unable to associate the ISL channel number with the B channel number. Therefore, only units 0 to 4 (loop shelf card 0 to loop shelf card 4) can be used.

Table 40
Channel numbering error – gap on one card

Unit number (from TN)	ISL Channel number
0	1
1	2
2	3
3	4
4	5
5	11
6	12

Decreasing channel numbering sequence

Table 41 on page 238 shows an example of a decreasing ISL channel numbering plan. Using decreasing ISL channel identifiers causes the IP trunk card to be unable to associate the ISL channel number with the B channel number. In this example, only unit 0 (loop shelf card 0) can be used.

Table 41
Channel numbering error – decreasing channel number sequence

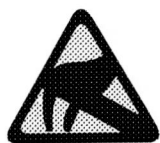
Unit number (from TN)	ISL Channel number
0	24
1	23
2	22
3	21
4	20
5	19
6	18
7	17

Overlapping channel numbers

Do not provision the ISL channel numbers on both cards with the same channel numbers. For example, do not configure Channel 10 on both cards. Meridian 1 rejects this numbering plan but the IP trunk card does not. Therefore, it is possible to implement the incorrect card numbering, making all channels above the first overlapping number unusable.

Install and cable IP Trunk 3.0 cards

Card installation procedure



CAUTION WITH ESDS DEVICES

Use ESD precautions when unpacking the hardware and unpacking the cards.

As each IP trunk card is placed in the Meridian 1 system, record the TN, management MAC address and the card density on the IP Trunk 3.0 Installation Summary Sheet. The management MAC address is labeled on the IP trunk card faceplate as the motherboard Ethernet address.

Each ITG-Pentium 24-port trunk card requires two slots in a Meridian 1 IPE shelf. Only the left slot of the card requires connection to the Meridian 1 IPE backplane and I/O panel. Each Succession Media Card 32-port trunk card requires only one slot in the Meridian 1 IPE shelf.

At least one DCHIP card must be installed in an IP Trunk 3.0 node. The D-Channel (DCH) PC Card and the associated NTCW84EA DCHIP PC Card Pigtail cable must be installed on to the DCHIP card.

Install a maximum of eight IP trunk cards in an IPE shelf. The ITG-Pentium 24-port trunk card can occupy any two adjacent slots in an IPE shelf, with the left slot of the card plugging into slots 0 to 6 and 8 to 15. The left slot of an IP trunk card cannot be plugged in slot 7, because the XPEC card is situated in-between slots 7 and 8.

To allow a module to hold the maximum number of IP trunk cards, install each ITG-Pentium 24-port trunk card with the left slot of the card inserted in an even-numbered slot.

If the maximum card density for each module is not required, the left slot of the IP trunk card can be inserted in an odd-numbered slot.

Note 1: The ITG-Pentium 24-port trunk card requires 24-pair tip and ring I/O cabling. NT8D37AA IPE modules have 24-pair tip and ring I/O cabling for card slots 0, 4, 8, and 12 only. Insert the left slot of the IP trunk card in NT8D37AA slots 0, 4, 8 or 12 only. NT8D37BA or later IPE modules have no such restriction.

Note 2: When multiple IP trunk cards are installed, distribute them between available IPE shelves. This prevents total loss of IP trunking, in the case of localized shelf failure.



CAUTION WITH ESDS DEVICES

Wear an electrostatic discharge strap when handling IP trunk cards. As an additional safety measure, handle all cards only by the edges and, when possible, with the loosened packaging material still around the component.



CAUTION — Equipment Damage

Never install an IP trunk card in an IPE shelf that has been wired for a Central Office Trunk (COT) card. Before inserting the card into the slot, disconnect the cable connecting this card to the Main Distribution Frame (MDF). COT cards can receive ringing voltage, which, when applied to an IP trunk card, can damage the card.



CAUTION — Equipment Damage

Do not overtighten screws. They can break.

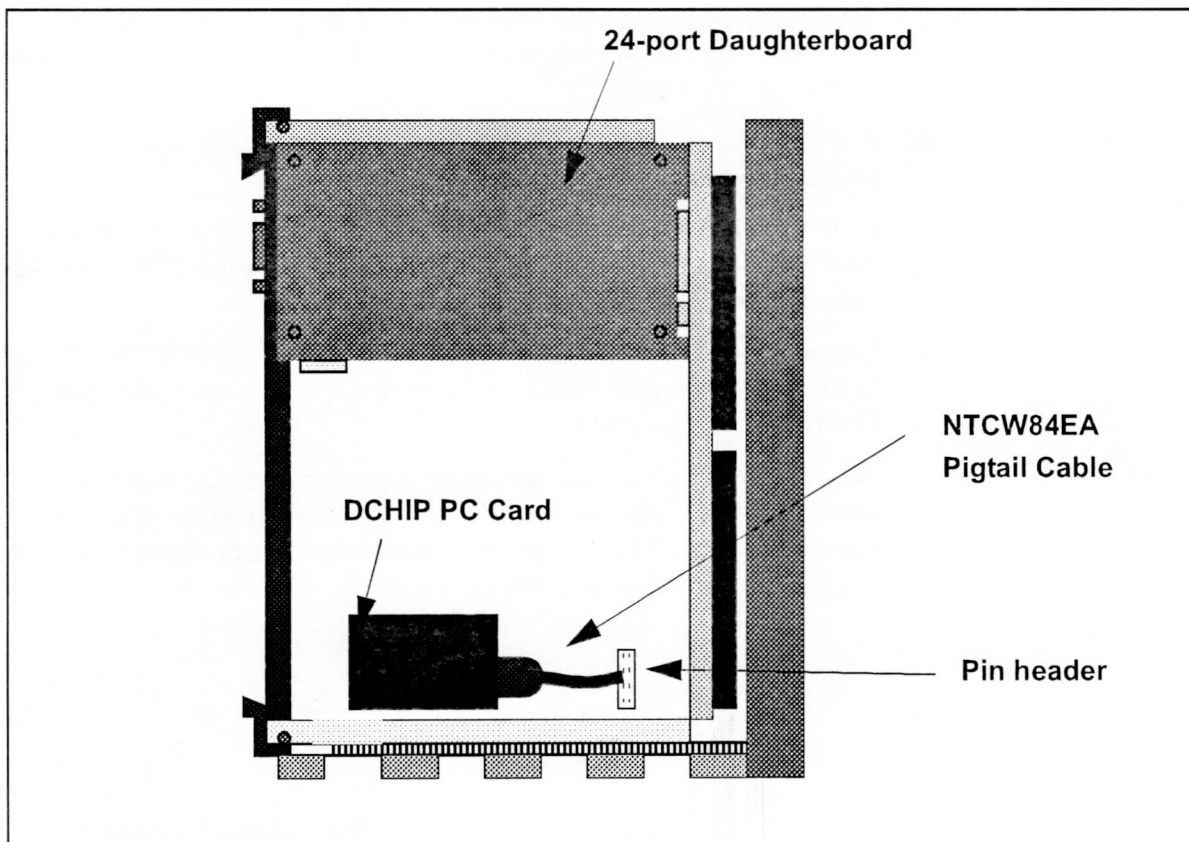
Follow the steps in Procedure 6 on page 241 to install and cable the ITG-Pentium 24-port trunk card.

Procedure 6**Installing and cabling the ITG-Pentium 24-port trunk card**

- 1** Identify the IPE card slots selected for the IP trunk card(s). Use the recorded information from the IP Trunk 3.0 Installation Summary Sheet (Figure 36 on page 229).
- 2** Remove any existing I/O panel cables associated with any card previously installed in the selected card slot.
- 3** Install the NTWE07AA DCHIP PC Card into the internal PC Card slot on the IP trunk card that has been selected to provide the DCHIP function. (See Figure 29 on page 242.)
- 4** Connect the NTCW84EA pigtail cable from port 0 of the DCHIP PC Card to the J14 pin header on the motherboard of the DCHIP card. See Figure 29 on page 242.

The cable routes the D-Channel signals to the backplane and the I/O panel. The PC Card connector is keyed to allow insertion only in the correct direction. The J-14 pin header connector is not keyed. Be careful to align the connector with the pin header.

Figure 29
DCHIP PC Card and NTCW84EA pigtail cable



- 5 Pull the top and bottom locking devices away from the IP trunk card faceplate. Insert the IP trunk card into the card slots and carefully push it until it makes contact with the backplane connector. Hook the locking devices.

Note 1: When the IP trunk cards are installed, the red LED on the faceplate is lit if: the card has rebooted; the card is active, but there are no trunks configured on it; or the card is active and has trunks, but the trunks are disabled. If the LED does not follow the pattern described (such as remaining continuously flashing or weakly lit), replace the card.

Note 2: Observe the IP trunk card Faceplate Maintenance display to see start-up self-test results and status messages. A display of the type "F:xx" indicates a failure. Some failures indicate that the card must be replaced. "F:10" temporarily appears on the display, which indicates a Security Device test failure. Since IP Trunk 3.0 does not use Security Devices, ignore this error.

Refer to "Succession Media Card 32-port trunk card faceplate maintenance display codes" on page 539 and "ITG-Pentium 24-port trunk card faceplate maintenance display codes" on page 542 for a complete listing of the codes.

End of Procedure

Install NTCW84JA Large system I/O Panel 50-Pin filter adapter

For Large systems, the standard filtering is provided by the 50-Pin filter adapters mounted in the I/O Panel on the back of the IPE shelf. The filter adapter connects externally to the MDF cables and internally to the NT8D81AA Backplane to I/O Panel ribbon cable assembly. Within the adapter, all Tip and Ring pairs, including the TLAN pairs, are filtered. For 100BaseT operation, the standard adapter must be replaced with the NTCW84JA adapter which is identical to the existing adapter but has unfiltered TLAN Tip and Ring pairs.

For Option 11C systems, the standard I/O filter connector already supports 100BaseTX.



CAUTION

For Large systems manufactured during 1998-1999 and shipped in North America, the IPE modules have the NT8D81BA Backplane to I/O Panel ribbon cable assembly with a non-removable Filter Connector. The NT8D81BA is compatible with 10BaseT TLAN, but if a 100BaseT TLAN is required, order the NT8D81AA Backplane to I/O Panel ribbon cable assembly to replace it. Do not try to install the NTCW84JA Filter Connector onto the existing non-removable Filter Connector.

Note: The NTCW84JA filter connector is required for separate subnets using 100BaseTX for the TLAN connection.

Remove existing I/O panel filter adapter

The standard I/O filter adapter is shielded metal with a black plastic insert connector. The NTCW84JA adapter uses yellow warning labels to indicate EMC filtering modifications and which MDF connection points can support 100BaseT connection.

Follow the steps in Procedure 7 to remove the existing I/O panel filter adapter.

Procedure 7

Removing the existing I/O panel filter adapter

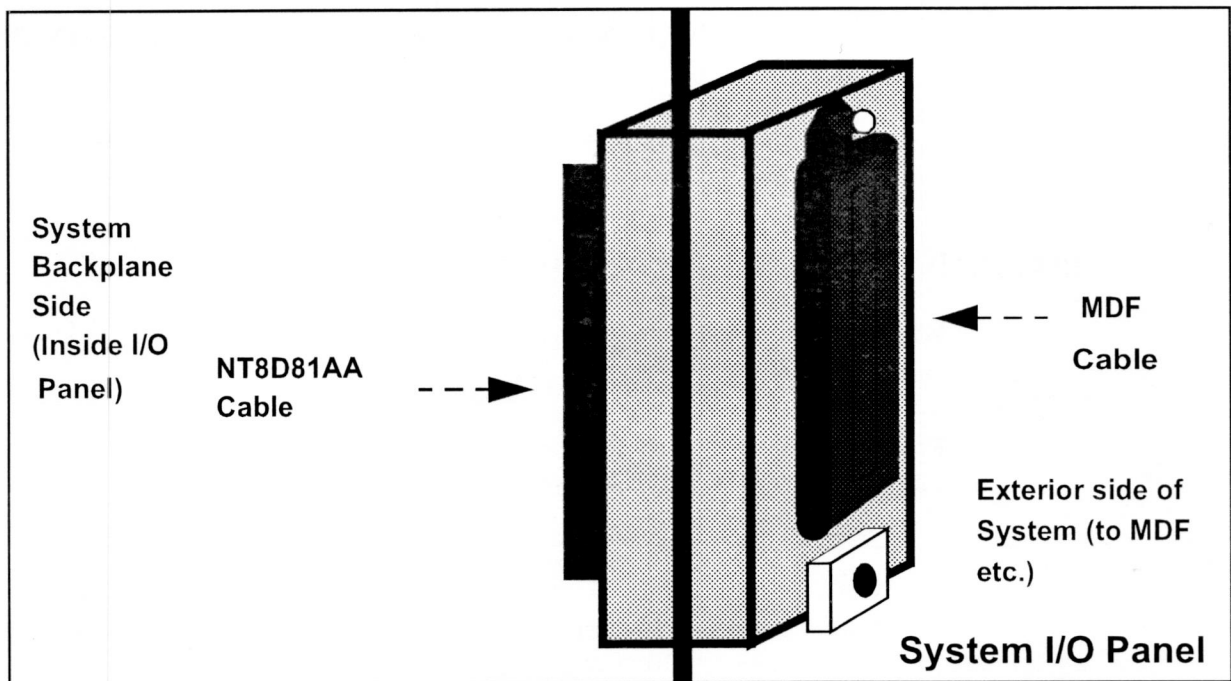
- 1 Remove the ITG pack, or any other IPE pack, from the IPE shelf card slot corresponding to the I/O Panel connector to be removed.

Note: Make sure to use the I/O panel connector which corresponds to the left slot number of the DCHIP card.

- 2 Remove the NT8D81AA Backplane to I/O Panel ribbon cable assembly which is connected to the backplane side of the existing block by releasing the latching pins on the filter block and pulling the NT8D81AA cable away.

- 3 Unscrew the existing filter adapter from the I/O panel. There is one screw on the lower front of the adapter and one screw on the upper back of the adapter. Remove the adapter.
- 4 Re-position the new NTCW84JA filter adapter in the now vacant I/O panel opening. (See Figure 29 on page 242.)
- 5 Attach the new NTCW84JA to the I/O panel by securely fastening the top back screw and the bottom front screw.
- 6 Reconnect the NT8D81AA cable and secure it in place by snapping shut the locking latches provided on the NTCW84JA connector.

End of Procedure

Figure 30**NTCW84JA 50 pin I/O Panel Filter Connector Block**

Note: Even though the ITG-Pentium 24-port trunk card is a two-slot card, only the leftmost slot is counted for the card slot number. Example: for an ITG-Pentium 24-port trunk card installed in slots 2 and 3, the slot number is 2.

For more detailed cabling information and procedures for replacing the NT8D81BA with the NT8D81AA, see “Cable description and NT8D81BA cable replacement” on page 551.

Install NTMF94EA and NTCW84KA cables

The Succession Media Card 32-port and ITG-Pentium 24-port trunk card supports a one-cable solution for access to the TLAN, ELAN and serial ELAN Ethernet Ports. The ELAN supports 10BaseT operation and the TLAN supports 10/100BaseT operation. If you use 100BaseT operation on the TLAN interface, install a NTCW84JA 50-pin I/O panel filter connector block to replace the standard I/O connectors provided.

Cables that are provided for the ELAN and TLAN interface functions include the following:

- the NTMF94EA ELAN, TLAN, and RS-232-port cable (for non-DCHIP cards)
- the NTCW84KA ELAN, TLAN, RS-232 and DCH Ports cable (for DCHIP cards)

Install the NTCW84KA cable (for DCHIP cards)

Follow the steps in Procedure 8 to connect the NTCW84KA cable for DCHIP cards.

Procedure 8 **Installing the NTCW84KA cable**

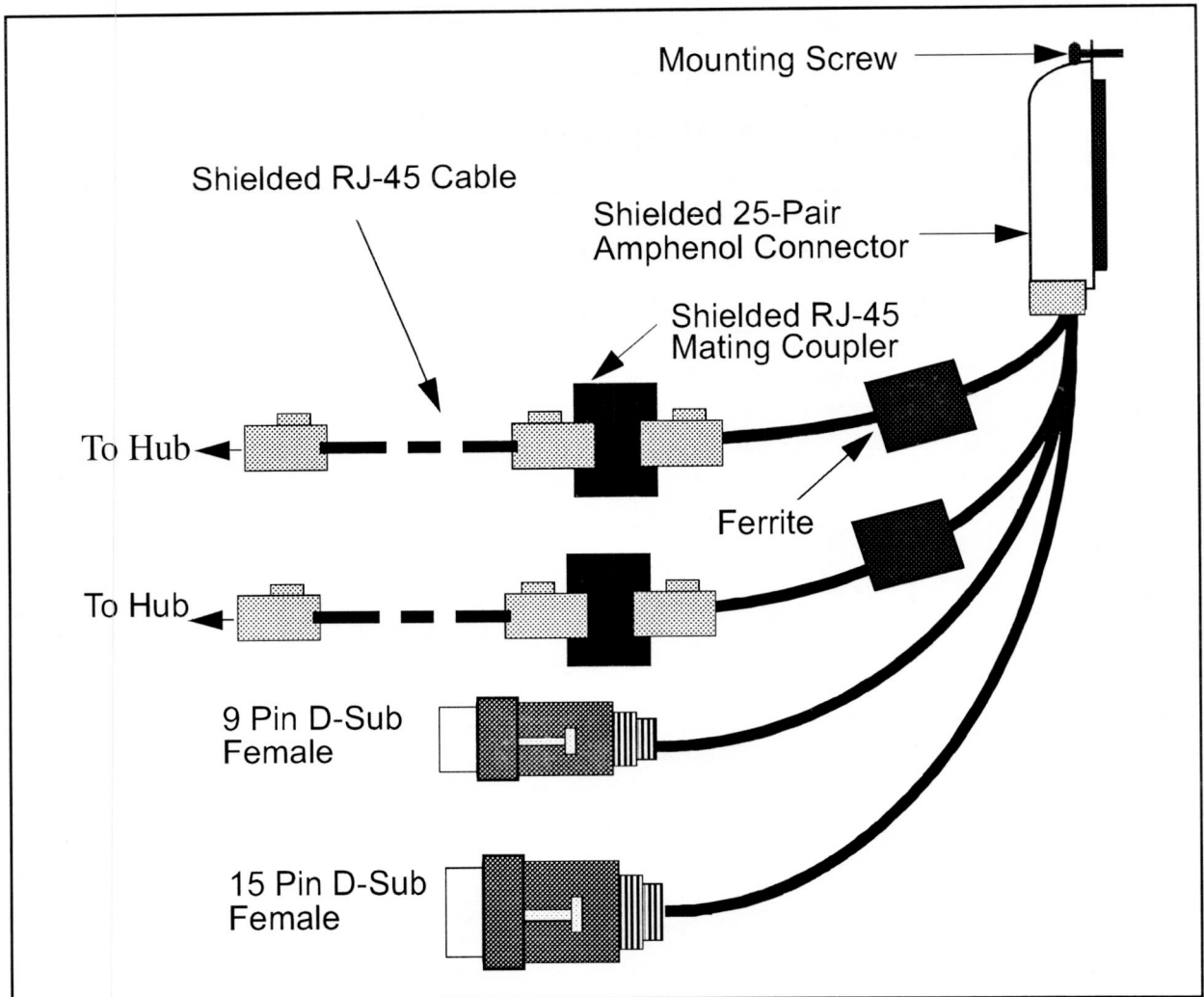
- 1 Connect the NTCW84KA cable see to the I/O panel connector (see Figure 31).

Note: Make sure to connect to the I/O panel connector that corresponds to the left slot number of the DCHIP card.

- 2 Secure the mounting screw provided on the top of the Shielded 25-Pair Amphenol Connector to the I/O Panel filter connector in order to tie the shield of the LAN cable to the Meridian 1 frame ground for EMC compliance.

End of Procedure

Figure 31
NTCW84KA ELAN, TLAN, DCH and serial cable



Install the NTMF94EA cable (for non-DCHIP cards)

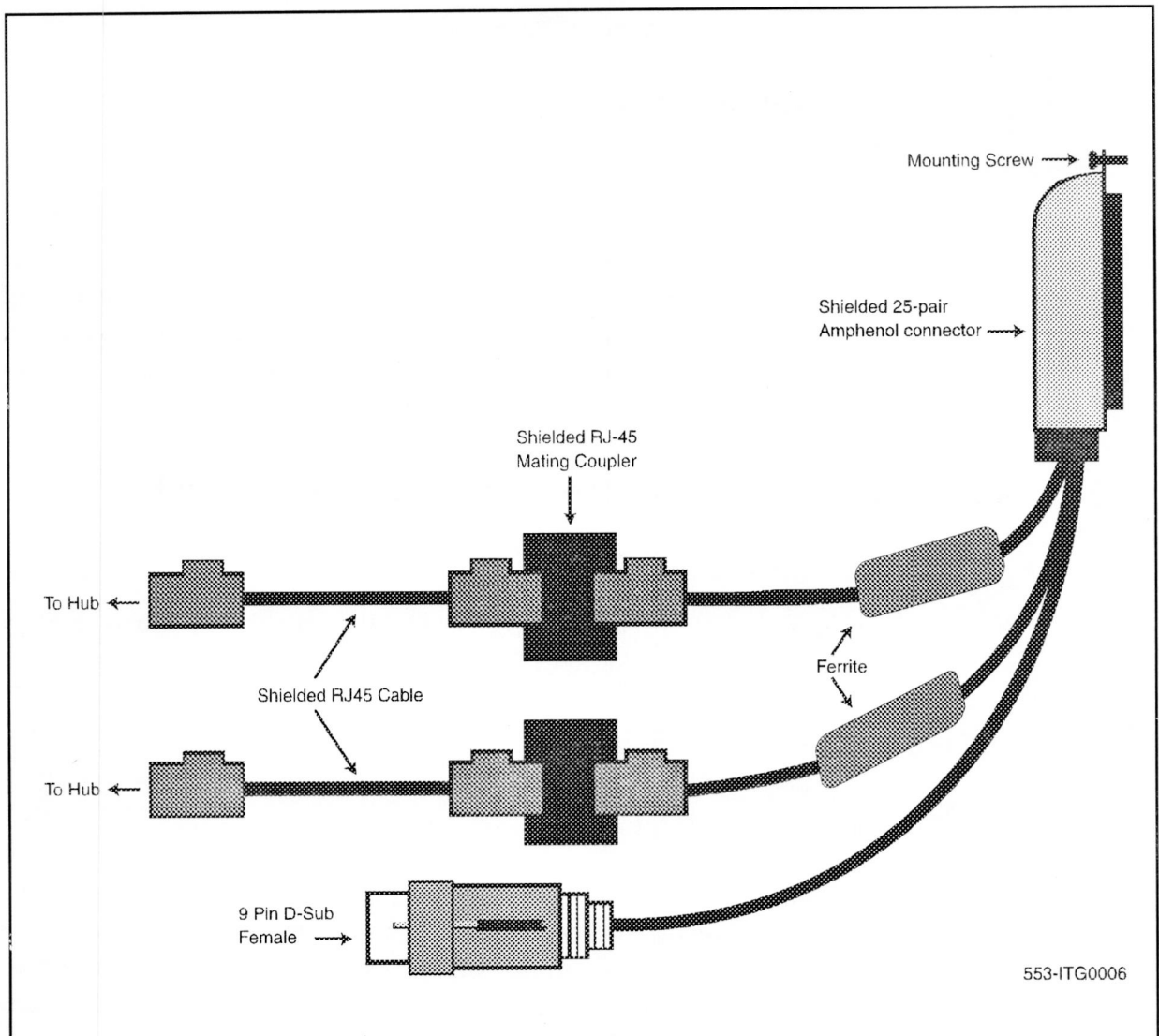
Follow the steps in Procedure 9 to install the NTMF94EA cable for non-DCHIP cards.

Procedure 9

Installing the NTMF94EA cable

- 1** Connect the NTMF94EA cable (see Figure 32) to the I/O panel connector. Make sure to connect to the I/O panel connector which corresponds to the left slot number of the DCHIP card.
- 2** Secure the mounting screw provided on the top of the Shielded 25-Pair Amphenol Connector to the I/O Panel filter connector in order to tie the shield of the LAN cable to the Meridian 1 frame ground for EMC compliance.

Figure 32
NTMF94EA ELAN, TLAN and serial port cable



End of Procedure

Install shielded voice interface (TLAN) cable

Use Shielded Category 5 cable to connect to the ELAN, TLAN ports on the NTCW84KA cable. To conduct a ground loop test, refer to page 567 and follow the test procedure.

For DCHIP cards

Connect a shielded Category 5 LAN cable from the TLAN hub to the R-J45 coupler on the NTCW84KA TLAN connector.

For non-DCHIP cards

Connect a shielded Category 5 LAN cable from the TLAN hub to the RJ-45 coupler on the NTMF94EA TLAN connector.

Note: When connecting the Succession Media Card 32-port trunk card and/or ITG-Pentium 24-port trunk card to the TLAN, the link status LED on the card faceplate associated with the voice interface lights green when the connection is made. The link status LED on the hub port also lights green when connected to the IP trunk card.

Install shielded management interface (ELAN) cable

For DCHIP cards

Connect a shielded Category 5 LAN cable from the ELAN hub to the RJ-45 coupler on the NTCW84KA ELAN connector.

For non-DCHIP cards

Connect a shielded Category 5 LAN cable from the ELAN hub to the RJ-45 coupler on the NTMF94EA ELAN connector.

Note: There are no ELAN network status LEDs for the management interface on the Succession Media Card 32-port trunk card and ITG-Pentium 24-port trunk card. When connected to the IP trunk card management interface, the port status LED indicator on the ELAN hub lights green to indicate a good connection.

D-channel cabling for the NT0961AA ITG-Pentium 24-Port trunk card

In this section, check, and reset if necessary, MSDL switch settings, install a filter (if required for the installation) and install the cable that connects the MSDL or SDI/DCH card to the IP trunk card that provides the DCH interface.

Large system required cables and filters

Large systems require the following:

- the NTCW84KA ELAN, TLAN, RS-232 and DCH Ports cable
- the NTND26AA MSDL DCH cable

Set NT6D80 MSDL switches

Set the switches in the NT6D80 MSDL card as shown in Table 42.

Table 42

NT6D80 MSDL settings for ITG-Pentium 24-port trunk card DCHIP

	Port 0 – SW4	Port 0 – SW8
RS-422-A DTE	all off	all on
	Port 1 – SW3	Port 1 – SW7
RS-422-A DTE	all off	all on
	Port 2 – SW2	Port 2 – SW6
RS-422-A DTE	all off	all on
	Port 3 – SW1	Port 3 – SW5
RS-422-A DTE	all off	all on
Note: The device number for the MSDL card is configured in LD 17 at the prompt DNUM. Also set the device number, using switches S9 and S10, on the MSDL card. S9 designates ones and S10 designates tens. To set the device number as 14, for example, set S10 to 1 and S9 to 4.		

Install filter and NTND26 cable (for MSDL and DCHIP cards in same Large system equipment row)

Follow the steps in Procedure 10 to install the filter and NTND26 cable for MSDL and DCHIP cards in same Large system equipment row.

Procedure 10

Installing the filter and NTND26 cable for MSDL and DCHIP cards in the same Large system equipment row

- 1** Install the bracket for the 15-pin I/O panel filter connector in one of the two smaller openings (J2, J3, J4, J5) of the I/O panel of the IPE Module that contains the DCHIP card.
- 2** Install the 15-pin I/O panel filter connector on the inward side of the bracket.
- 3** Obtain the correct length of the NTND26 DCHI Interface Cable Assembly to reach from the D-Channel port connector on the faceplate of the MSDL card to the outward side of the 15-pin filter connector installed in the I/O panel of the IPE Module that contains the DCHIP card. See Figure 33 on page 253.

The NTND26 DCHI Interface Cable Assembly is available in the following lengths:

- NTND26AA – 6 ft
- NTND26AB – 18 ft
- NTND26AC – 35 ft
- NTND26AD – 50 ft

NT6D80 Multi-purpose Serial Data Link Card

RS-232-D DTE or DCE*	Port 0—SW4	Port 0—SW8
RS-422-A DTE (terminal)	all off	all off
RS-422-A DCE (modem)	all off	all on
	all on	all off
RS-232-D DTE or DCE*	Port 1—SW3	Port 1—SW7
RS-422-A DTE	all off	all off
RS-422-A DCE	all off	all on
	all on	all off
RS-232-D DTE or DCE*	Port 2—SW2	Port 2—SW6
RS-422-A DTE	all off	all off
RS-422-A DCE	all off	all on
	all on	all off
RS-232-D DTE or DCE*	Port 3—SW1	Port 3—SW5
RS-422-A DTE	all off	all off
RS-422-A DCE	all off	all on
	all on	all off
* RS-232-D DTE and DCE modes are software configured. RS-422-A DTE and DCE modes are switch configured. Note: When you install the NT6D80 card, you must also set the device number, using switches S9 and S10 on the MSBL card. S9 designates ones and S10 designates tens.		

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Figure 33
15-pin filter connector installation

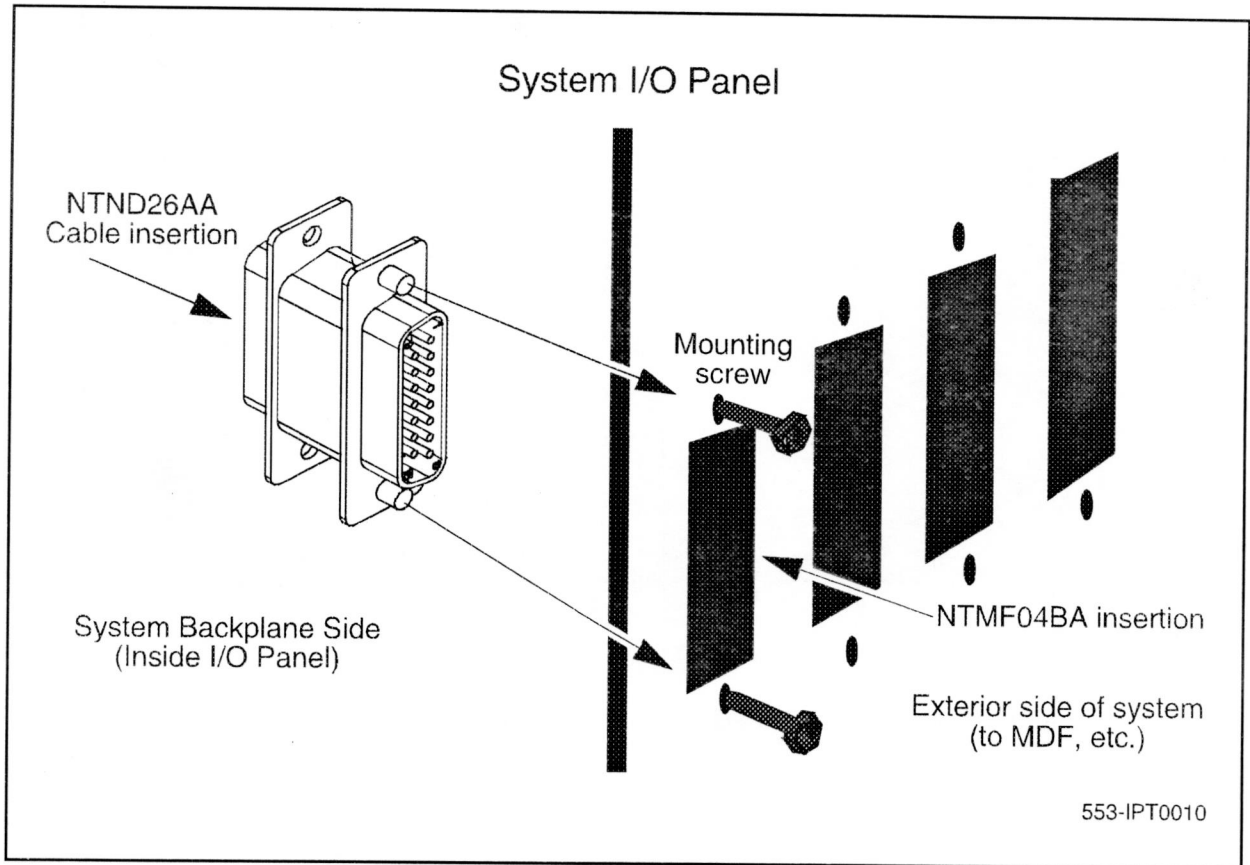
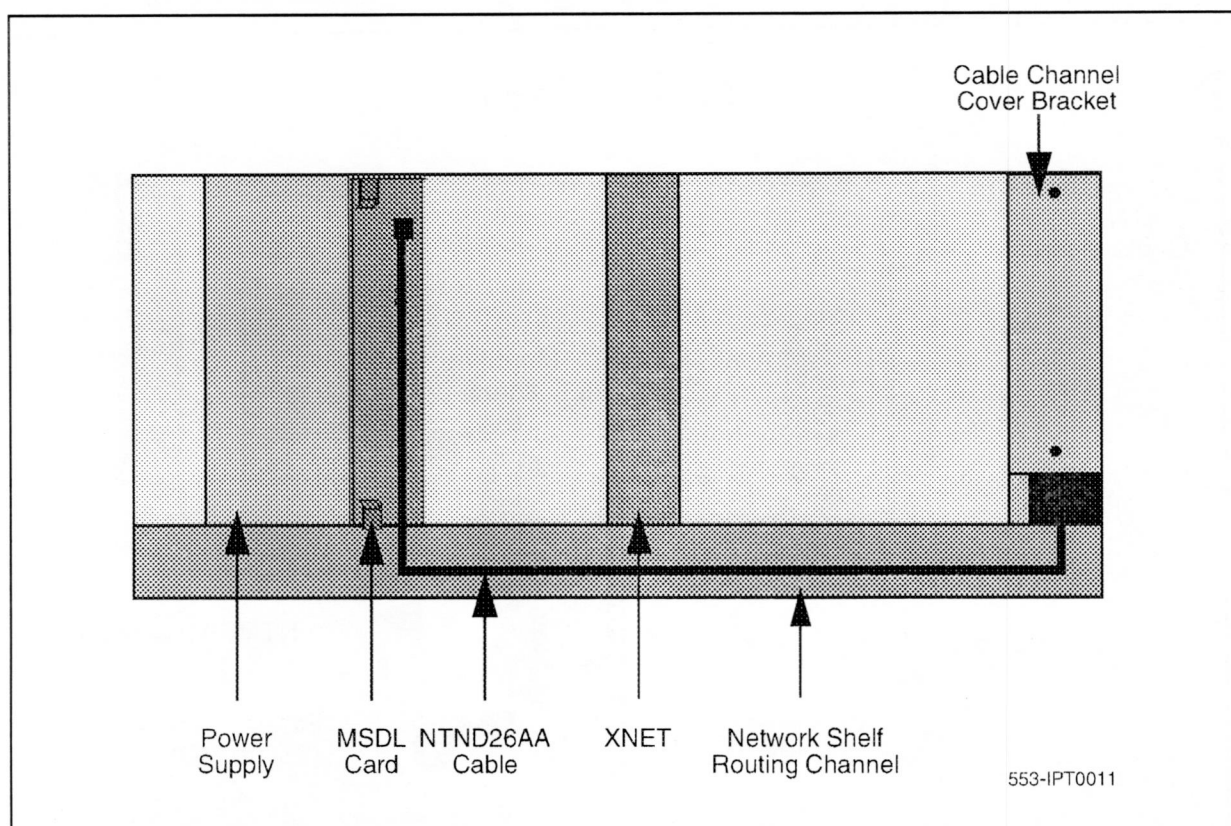


Figure 34
NTND26 cable routing diagram



- 4 Connect the appropriate NTND26 cable assembly to the D-Channel port connector on the faceplate of the MSDL card and to the inward side of the 15-pin filter connector installed in the I/O panel of the IPE Module that contains the DCHIP card.
- 5 Connect the DCH (P5) connector of the NTCW84KA to the outward side of the 15-pin I/O panel filter connector.

————— End of Procedure —————

Install filter and NTND26 cable (for MSDL and DCHIP cards in different Large system equipment rows)

Follow the steps in Procedure 11 to install the filter and NTND26 cable for MSDL and DCHIP cards in different Large system equipment rows.

Procedure 11**Installing the filter and NTND26 cable for MSDL and DCHIP cards in different Large system equipment rows**

- 1 Install the bracket for the 15-pin I/O panel filter connector in the J16, J17, J37 or J38 I/O panel opening of the I/O panel of the Network Module or Core/Net Module that contains the MSDL card.
- 2 Install the 15-pin I/O panel filter connector on the inward side of the bracket.
- 3 Obtain the correct length of the NTND26 DCHI Interface Cable Assembly to reach from the D-Channel port connector on the faceplate of the MSDL card to the outward side of the 15-pin filter connector installed in the I/O panel of the IPE Module that contains the DCHIP card.

The NTND26 DCHI Interface Cable Assembly is available in the following lengths:

- NTND26AA – 6 ft.
 - NTND26AB – 18 ft.
 - NTND26AC – 35 ft.
 - NTND26AD – 50 ft.
- 4 Connect the appropriate NTND26 cable assembly to the D-Channel port connector on the faceplate of the MSDL card and to the outward side of the 15-pin filter connector installed in the I/O panel of the IPE Module that contains the DCHIP card.
 - 5 Use the NTMF04BA Extension Cable to connect the DCH (P5) connector of the NTCW84KA to the inward side of the 15-pin I/O panel filter connector.

End of Procedure

Meridian 1 Small system cable installation (Option 11C and Option 11C Mini)

Follow the steps in Procedure 12 on page 256 for Small system cable installation.

Procedure 12
Installing cables on Small systems

- 1** Set the switches and jumper plugs in the NTA02 SDI/DCH card as shown. See Table 43, and Table 44 on page 256.

Table 43
NTA02 SDI/DCH switch settings for IP Trunk 3.0 DCHIP

Port 1	SW 1-1	SW 1-2
DCH	OFF	OFF
Port 3	SW 1-3	SW 1-4
DCH	OFF	OFF

Table 44
NTA02 SDI/DCH jumper settings for the IP Trunk 3.0 DCHIP

Port	Jumper location	Strap for DTE	Jumper location	RS422
Port 1	J7	C – B	J9	C – B
	J6	C – B	J8	C – B
Port 3	J4	C – B	J2	C – B
	J3	C – B	J1	C – B

- 2** Connect the NTA19FB Quad Serial I/O SDI/DCH Cable (or equivalent) to the I/O connector for the card slot in which the SDI/DCH card is installed.
- 3** If the DCHIP card is installed in the main cabinet with the SDI/DCH card, then use NTWE04AD SDI/DCH Extension Cable (1 ft) from the NTCW84KA DCH (P5) connector to the NTA19FB D-Channel port connector for Port 1 or Port 3.

- 4 If the DCHIP card is installed in the expansion cabinet, then use NTWE04AC SDI/DCH Extension Cable (10 ft) from the NTCW84KA DCH (P5) connector to the NTAK19FB D-Channel port connector for Port 1 or Port 3.

Install the serial cable

Follow the steps in Procedure 13 on page 257 to install the serial cable.

Procedure 13

Installing the serial cable

- 1 To make a temporary connection to the IP Trunk 3.0 maintenance port from a local RS-232 TTY terminal or a modem, use the NTAG81CA PC Maintenance cable.
 - a. Connect the DIN-8 connector to the maintenance port on the faceplate of the IP trunk card.
 - b. Connect the DB9 connector to the COM port of a local PC running TTY terminal emulation.

If required, use an NTAG81BA Maintenance Extender cable to provide an extension between the NTAG81CA PC Maintenance cable and the PC COM port. For remote dialup access from a remote PC, use a null modem adaptor between the NTAG81CA (or NTAG81BA) maintenance cable and the modem.

- 2 To make a more permanent connection to the maintenance port:
 - a. Connect the NTAG81BA Maintenance Extender cable to the female DB9 connector of the NTCW84KA I/O cable for DCHIP cards, or the NTMF94EA I/O cable for non-DCHIP cards.
 - b. Connect the other end of the NTAG81BA Maintenance Extender cable to the PC COM port, or through a null modem cable to a modem.

Note: Only a single maintenance port connection can be made at a time. Do not connect a terminal or modem to the faceplate maintenance port and the NTCW84KA or the NTMF94EA.

Cabling for the Succession Media Card 32-port trunk card

This section describes the cabling necessary to install the Succession Media Card 32-port trunk card.

ELAN and TLAN interfaces

The Succession Media Card 32-port trunk card supports a single connector solution for access to the TLAN and ELAN Ethernet Ports. This ITG Card Adapter ELAN/TLAN solution (L-adapter) replaces the ITG-Pentium 24-port product which requires a single 'octopus' cable. The L-adapter can also be used on the ITG-Pentium 24-port trunk card. Refer to "Cable description and NT8D81BA cable replacement" on page 551 for more information on cabling the ITG-Pentium 24-port trunk card.

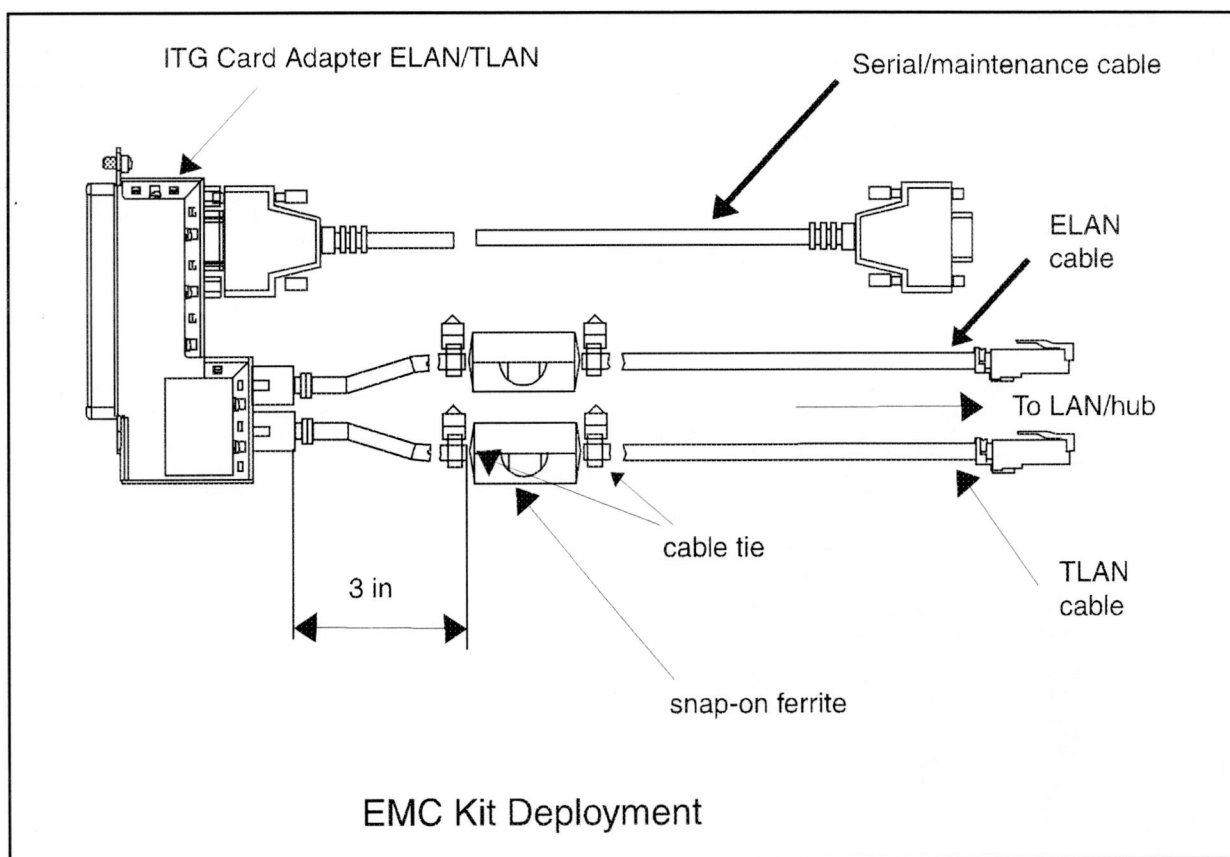
The ELAN supports 10BaseT operation. The TLAN supports 10/100BaseT operation. To support the 100BaseT operation on Meridian 1 Large systems, the TLAN interface requires specialized I/O panel mounting connectors. These connectors replace the standard connectors provided on the Meridian 1 system.

Cables and connectors for the ELAN and TLAN interface include the following:

- the NTCW84JA Meridian 1 Large system I/O panel filter block
- the ITG Card Adapter ELAN/TLAN, for use with both D-Chip and non-D-Chip equipped cards. Standard shielded, CAT-5 LAN cables (<100 meters) are recommended to attach the LAN ports to the local network.

An ITG EMC shielding kit (NTVQ83) must be installed on the ELAN and TLAN interface cables to meet regulatory requirements at the installation site. As shown in Figure 35 on page 259, a ferrite must be placed on both the ELAN and TLAN ethernet cables during installation. Cable ties are then placed to retain the ferrites in the correct position. This applies to both Small and Large systems.

Figure 35
EMC kit deployment



ITG Card Adapter ELAN/TLAN (L-adapter)

The L-adapter routes the signals to the following ports:

- Ethernet management port (ELAN)
- Telephony port (TLAN)
- one RS-232 port

On Large systems, the NT8D81AA cable is used to bring all 24 Tip and Ring pairs to the I/O panel. The NTCW84JA I/O panel mounting block must be installed on Large systems before the ITG Card Adapter ELAN/TLAN (L-adapter) is installed. Refer to Figure 36 on page 260.

Install the adapter securely to ensure an active connection.

Figure 36
ITG card adapter ELAN/TLAN (L-adapter)

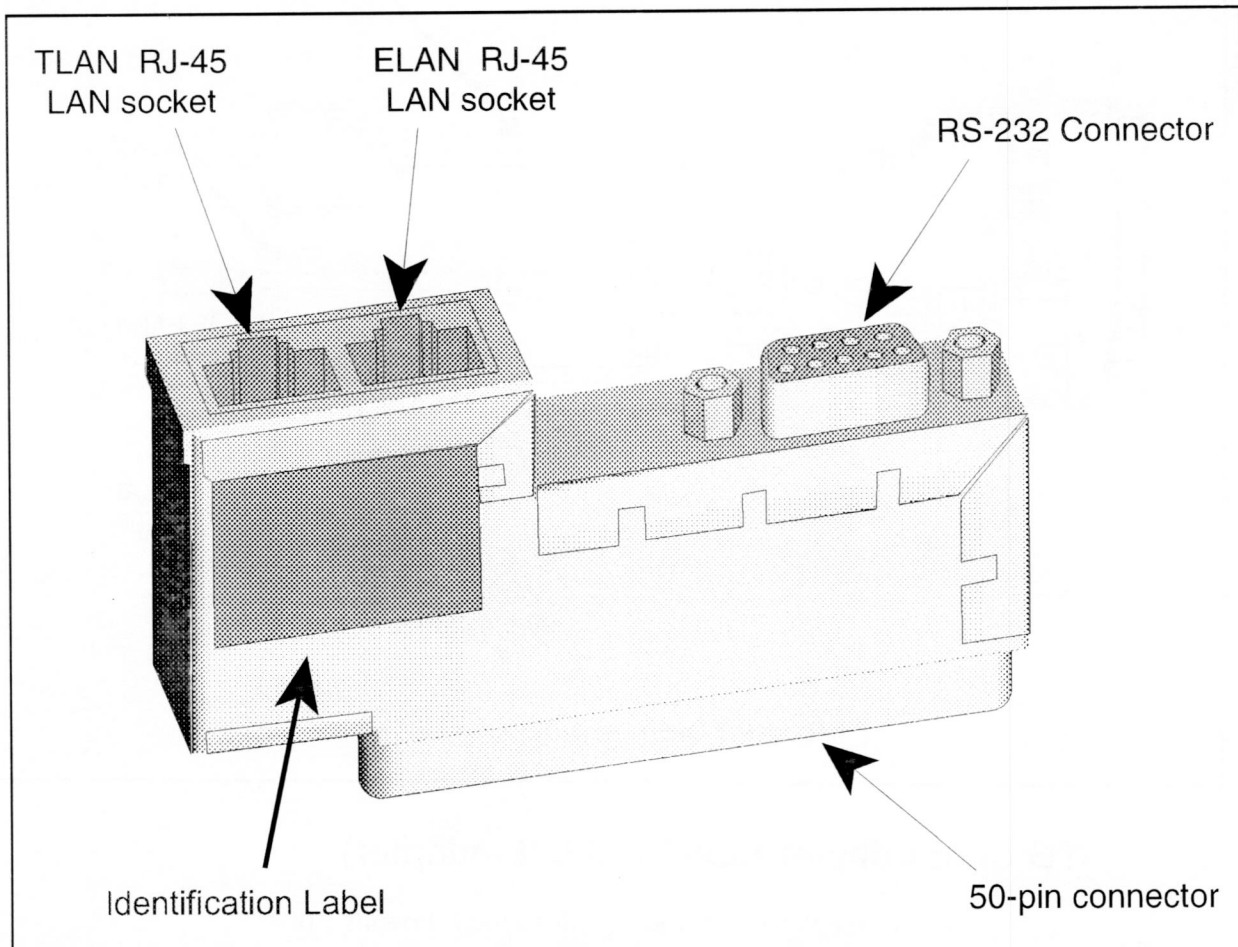
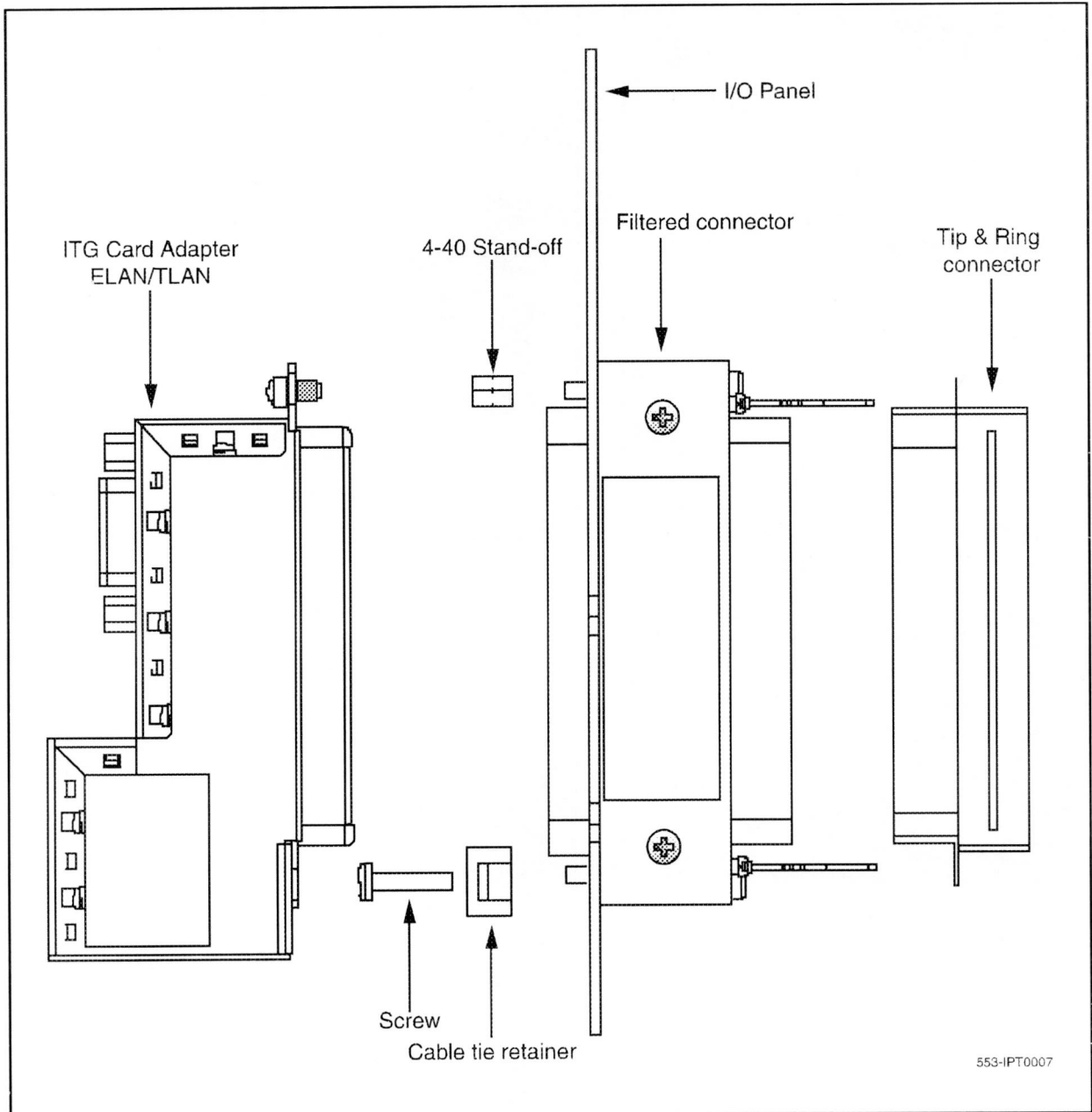


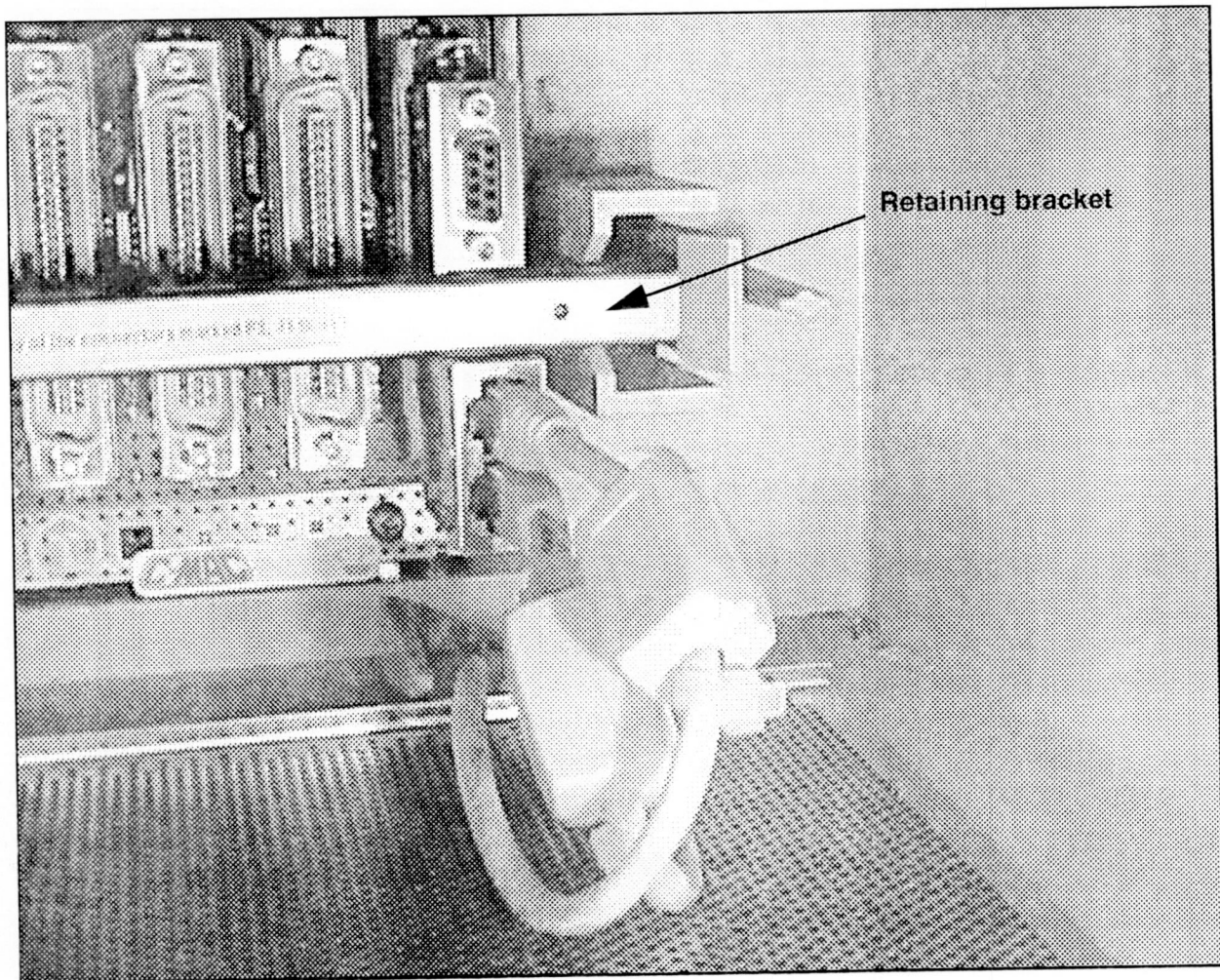
Figure 37 shows the adapter installed in a Large system with a securing screw and tie wrap.

Figure 37
ITG card adapter ELAN/TLAN (Large system)



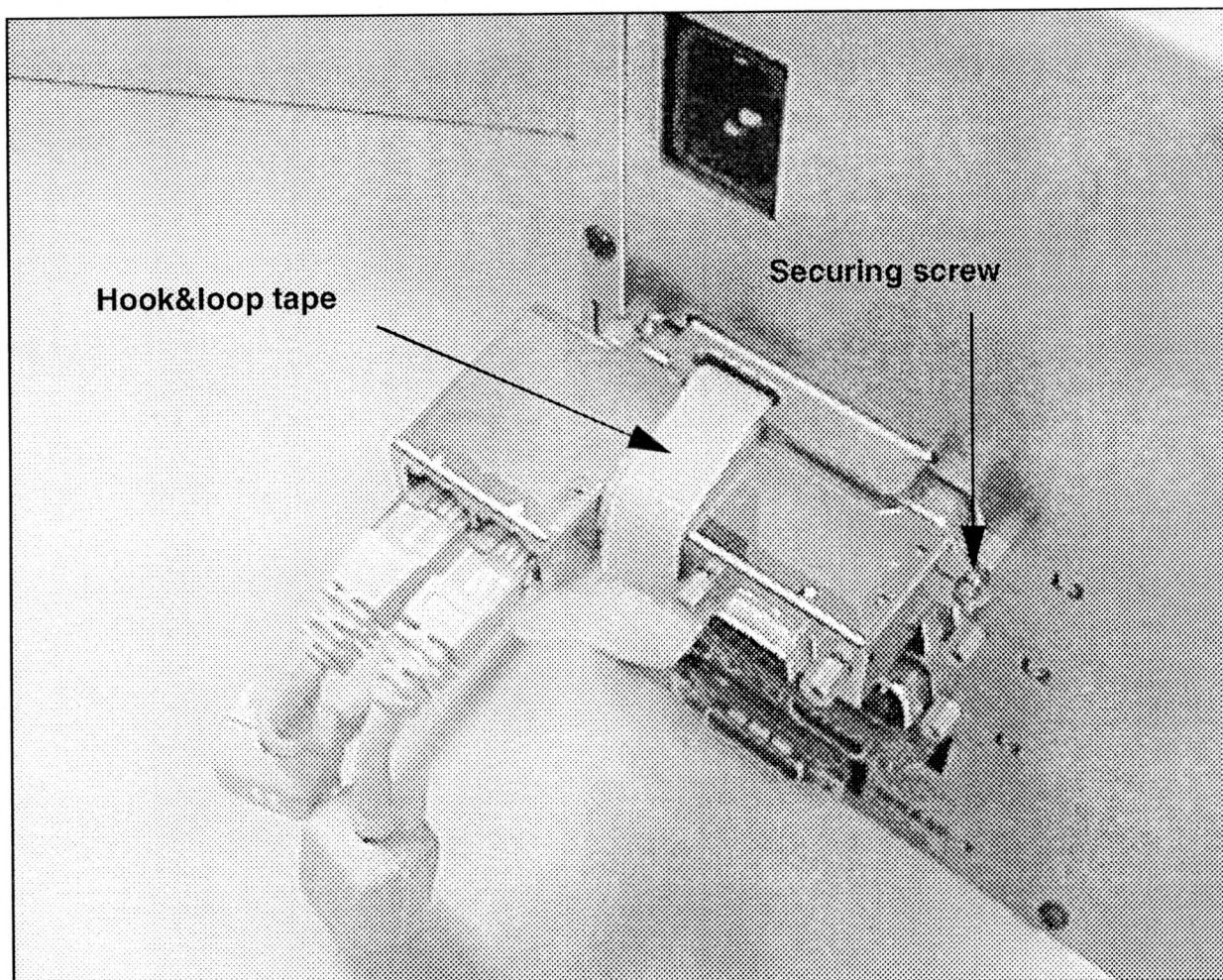
To install the adapter in a Small system, use a securing screw and retaining bracket. See Figure 38.

Figure 38
ITG card adapter ELAN/TLAN fitted to an Option 11C cabinet



To install an adapter in an Option 11C Mini system, use a securing screw and hook&loop tape.

Figure 39
ITG card adapter ELAN/TLAN fitted to Option 11C Mini cabinet



Note 1: When Succession Media Card 32-port trunk cards are used to replace ITG-Pentium 24-port trunk cards, the existing NTMF94EA or NTCW84KA cabling can be used.

Note 2: The DCHIP connection on the NTCW84KA cable does not function with the Succession Media Card 32-port trunk card. To connect the DCHIP where the NTCW84KA cable is being used, follow the instructions in Procedure 14 on page 265.

RS-232 maintenance port

The RS-232 maintenance port provides access to the Succession Media Card 32-port trunk card command prompt for monitoring and maintenance purposes, such as upgrades and debugging. This port is available at the 9-pin connector on the ITG Card Adapter ELAN/TLAN (L-adapter) and at the mini-DIN socket on the faceplate.

The serial port settings are as follows:

- 9600 baud
- 8 data bits
- 1 stop bit, no parity
- no flow control

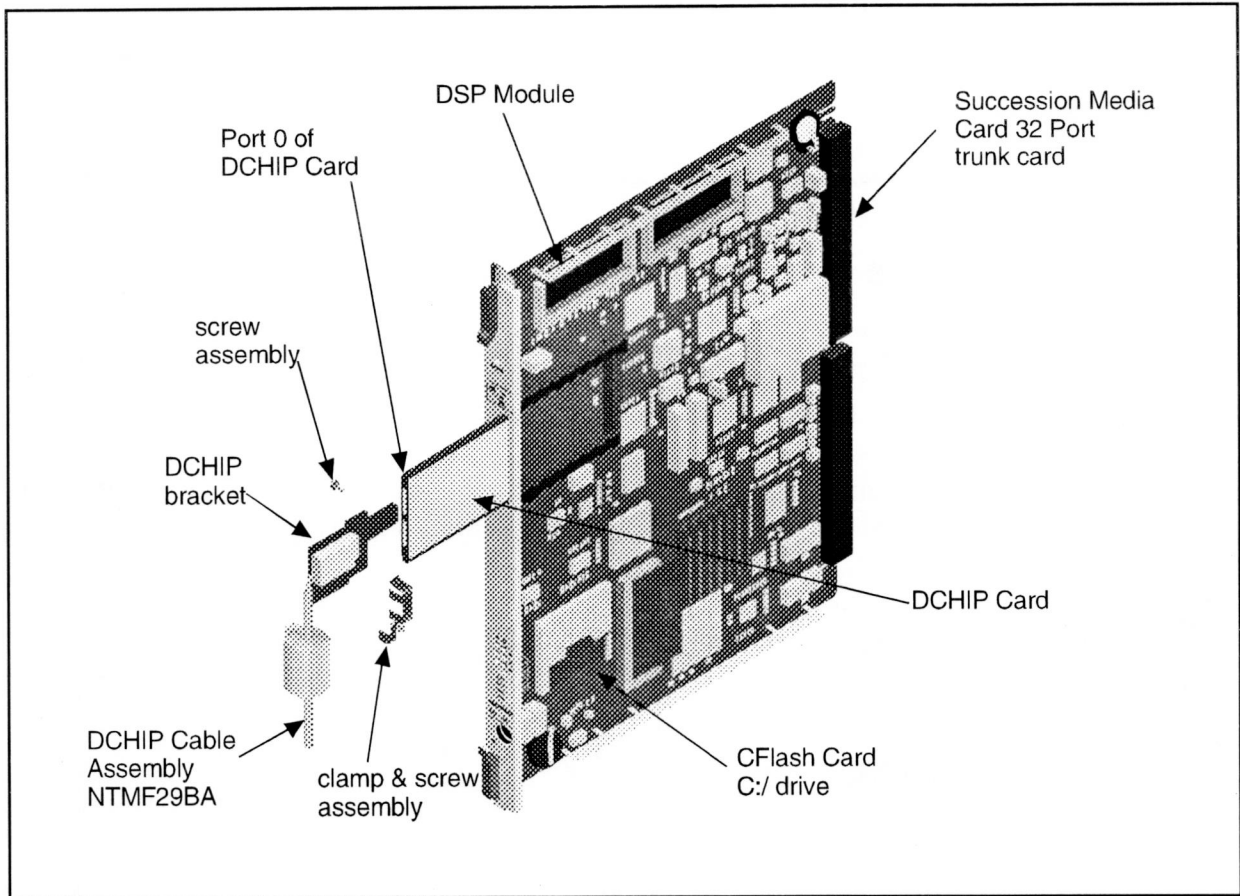
NTMF29BA DCHIP cable

The NTMF29BA DCHIP cable connects to port 0 of the DCHIP PC Card and the MSDL/SDI DCHIP cable.

Note: Port 1 on the DCHIP PC Card is not used.

The DCHIP PC Card, which connects to NTMF04BA and NTND26AA Cable, is keyed to allow insertion only in the correct direction. Refer to Figure 40 on page 265.

Figure 40
NTMF29BA PC Card DCHIP cable installation



To assemble the D-Chip cable, follow the steps in Procedure 14.

Procedure 14
Assembling the DCHIP cable

- 1 Insert the DCHIP bracket through the small slot to the left of the PC Card opening in the faceplate, as shown in Figure 40.
- 2 Fit the screw through the secondary side of the Succession Media Card 32-port trunk card into the threaded hole in the bracket and tighten.
- 3 Fit the DCHIP PC Card NTMF29BA cable assembly through the faceplate slot and push it home into the header.
- 4 Fit the DCHIP PC Card connector of the NTMF29BA cable assembly into Port 0 (the upper socket) on the DCHIP card.

- 5 Fit the clamp over the PC Card connector and into the bracket. Ensure that the cable is fitted through the clamp, then secure it to the bracket with the attached screw.
- 6 Make sure the eject button protrudes when the card is fully inserted. Do not use excessive force when inserting the DCHIP PC Card.

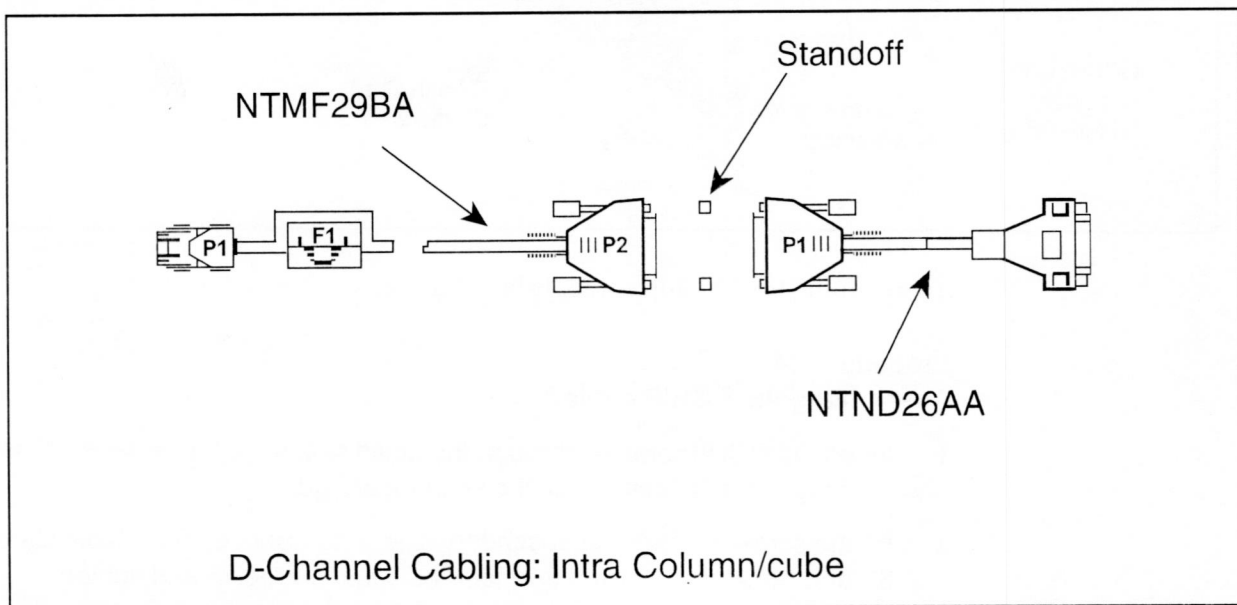
End of Procedure

DCHIP cable routing – Large systems

NTMF29BA/NTND26AA cable routing

The NTND26AA cable from the MSDL forms a direct flying lead connection to the NTMF29BA cable from the DCHIP card. The cables must be routed internally to the system along the cabling channels, as shown in Figure 41. The NTND26 cable is available in various lengths.

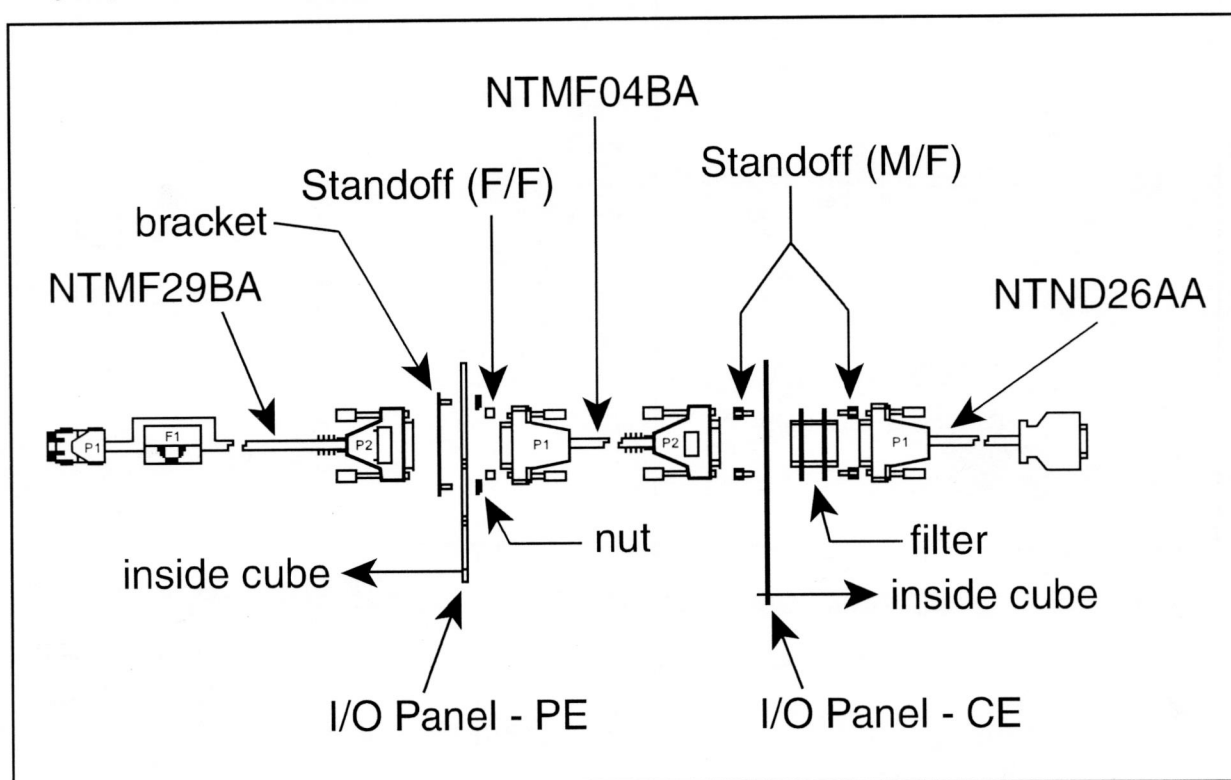
Figure 41
Large system DCHIP cabling setup: intra-column/cube



NTMF04BA MSDL extension cable

The NTMF04BA cable connects the NTND26AA MSDL cable and the NTMF29BA DCHIP cable, when the Common Equipment shelf and the IPE shelf are in separate columns and not connected by internal cabling channels. A 15-way mounting block (A03511331) is shipped with the NTMF04BA cable. The mounting block, when mounted on the Common Equipment shelf I/O panel, allows the connection of the NTND26AA and the NTMF04BA cables. The NTMF04BA cable is then routed externally to the IPE I/O panel to connect with the NTMF29BA DCHIP. See Figure 42.

Figure 42
Large system DCHIP cabling setup: inter-column

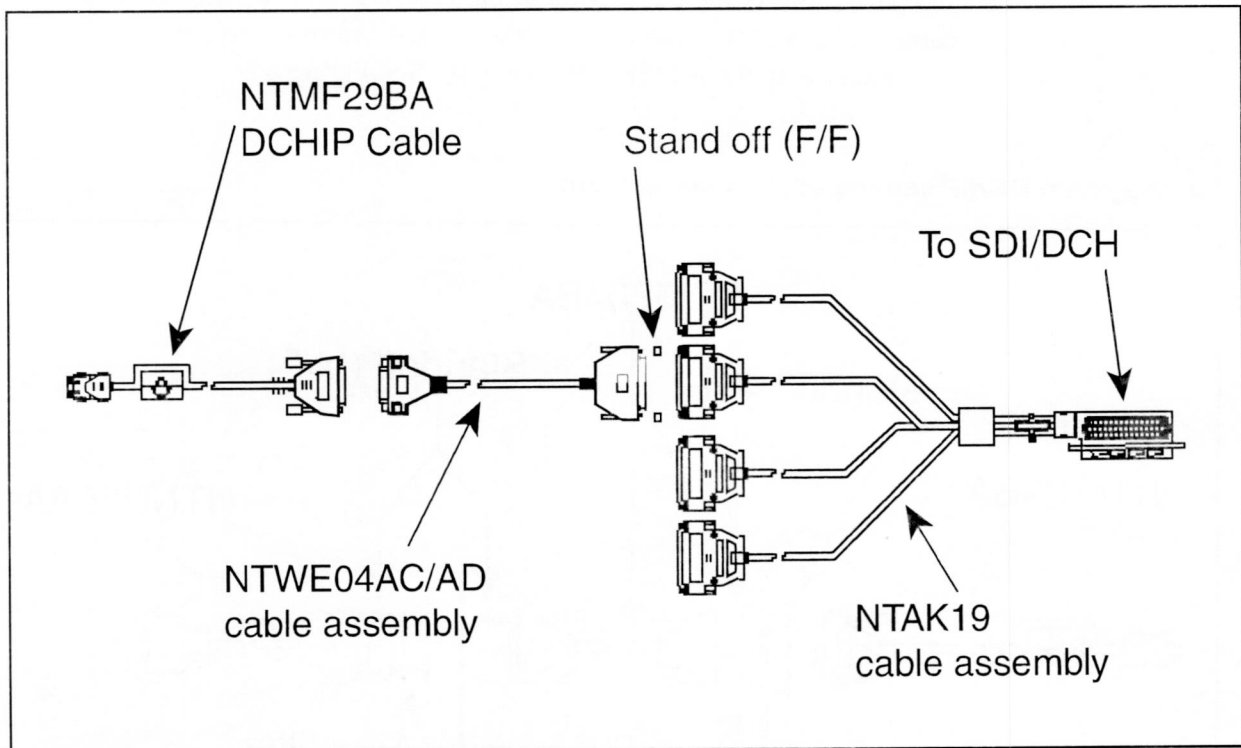


When the Universal Equipment Modules (UEMs) are stacked vertically, or the UEM columns are bolted together, they are cabled in an inter-column configuration. See Figure 42 on page 267. This applies when the UEM system columns are physically separated and the DCHIP must exit the systems through the I/O panel.

DCHIP Cable Routing – Option 11C

The following cables are specific to Option 11C. Cable connection details are shown in Figure 43.

Figure 43
Option 11C DCHIP system cabling



NTWE04AC/AD SDI/DCH Option 11C extension cable

The NTWE04AC and the NTWE04AD are 10 ft and 1 ft DCHIP extension cables respectively. They connect Port 1 or Port 3 of the DCHIP SDI/DCH cable used on Option 11C (NTAK19BA or equivalent) with the DCHIP NTMF29Bx face plate cable.

NTAK19BA four-port SDI/DCH cable

The NTAK 19BA cable is an Option 11C MDF cable for interfacing to the 4-port NTAK02 SDI/DCH card.

Other components

For Large systems, I/O panel 50-pin filtered adapters NTCW84JA are required for 100BaseT TLAN operation.

IP Trunk 3.0 uses the ITG Card adapter ELAN/TLAN to route Ethernet signals through the Meridian 1 system I/O panel and through system filtering. For standard 10BaseT operation, this inherent filtering in the system does not pose a functional concern.

For 100BaseT Ethernet links, the Meridian 1 filtering does impact functionality. Special consideration has been given to the routing of the TLAN Tip and Ring pairs. On Option 11C, some of the Tip and Ring pairs have been left free of filtering. The TLAN has been routed on the Succession Media Card 32-port trunk card to take advantage of this. By default, 100BaseT operation is fully functional on Option 11C.

Install ITG EMC shielding kit NTVQ83 with Small and Large system types. Refer to “ELAN and TLAN interfaces” on page 258 for additional information on the cabling requirements.

Succession Media Card 32-port trunk card modem connection

To provide remote access to the CLI for support and remote maintenance, a modem can be connected to the serial port of the Succession Media Card 32-port trunk card. To set up a working interface, follow the steps in Procedure 15.

Procedure 15

Connecting the Succession Media Card 32-port trunk card modem

- 1** Use a standard serial cable and establish communication with the modem from a PC. Use the following settings:
 - 9600 baud
 - 8 data bits, 1 stop bit
 - no parity
 - no flow control

- 2 Ensure that a Hayes-compatible modem is used. From the command line, type the following:

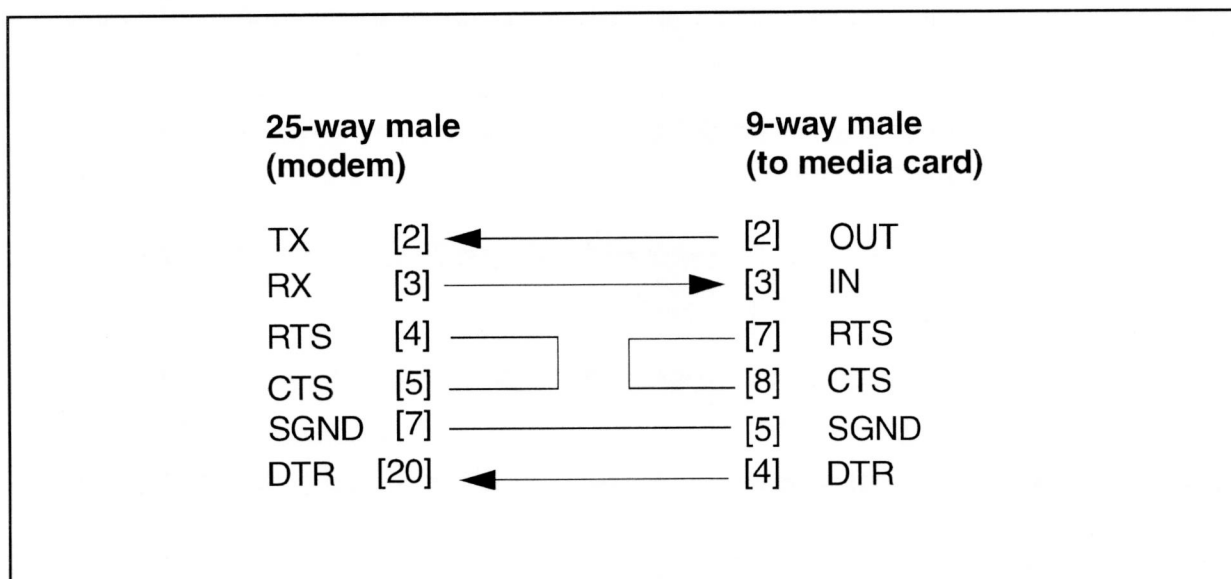
 AT <return>
- 3 When the OK prompt appears, enter the required settings from Table 45.

Table 45
Modem Settings

Setting	Action
ATS0=1 <return>	Set to auto-answer on first ring.
ATQ1 <return>	Disable result codes.
ATE0 <return>	Disable local echo.
AT&W0 <return>	Save settings.

- 4 Connect the modem to the Succession Media Card 32-port trunk card, using the 9-pin connector on the ITG Card Adapter ELAN/TLAN (L-adapter) or the legacy ITG cable. The interface cable must conform to the wiring specifications listed in Figure 44 on page 271 for compatibility with existing ITG modem connections.

Figure 44
Wiring specifications



End of Procedure

Configure IP Trunk 3.0 data on the Meridian 1

First, configure D-channels, Route Data Blocks, and trunks through the Meridian 1 system TTY. Then configure the ESN data blocks to implement the network dialing plan and translations. Record the D-Channel, CHIDs, and TNs for the IP Trunk 3.0 trunks on the IP Trunk 3.0 Installation Summary Sheet.

Configure the ISL D-channel on the Meridian 1 for the DCHIP card for IP Trunk 3.0

For the IP Trunk 3.0 application, use LD 17 to configure the ISL D-channel for the DCHIP card in Large systems.

LD 17 – Configure the ISL D-channel for the DCHIP card (Large systems) (Part 1 of 3)

Prompt	Response	Description
REQ	CHG	Add new data.
TYPE	ADAN	Type of data block.
ADAN	NEW DCH x	Action Device and Number, where: x = 0-255
CTYP	MSDL	Multi - purpose Serial Data Link card type. Set MSDL switch settings for the ISL DCH port to RS-422.
GRP	x	Network Group number, where: x = 0 – 4
DNUM	x	Device Number for I/O ports, where: x = 0 – 15
PORT	x	Port number for MSDL card, where: x = 0 – 3
DES	IP TRUNK	16 character designator is "IP TRUNK" Specific description if more than one IP Trunk 3.0 route exists.

LD 17 – Configure the ISL D-channel for the DCHIP card (Large systems) (Part 2 of 3)

Prompt	Response	Description
...		
USR	ISLD	User. Dedicated Mode ISDN Signaling Link.
IFC	SL1 ESGF ISGF	Interface type for D-channel: Meridian Customer Defined Network (MCDN) ESIG interface with GF platform (QSIG) ISIG interface with GF platform (QSIG) Note 1: The ESGF and ISGF responses are allowed if the QSIG and QSIG GF packages are both equipped. Note 2: The IFC entry must match the protocol entered in OTM's ITG Node Properties, Card Configuration, Protocol pull-down menu.
ISLM	xxx	Integrated Service Signaling Link Maximum CHIDs, where: $x = 1 - 382$ ISLM is the maximum number of ISL trunks controlled by the D-channel. There is no default value.
BPS	(64000)	64000 is the default and is required for the IP Trunk 3.0 DCHIP.
PARM	(RS422 DTE)	The RS-422 parameters are established with switch settings on the MSDL card. This prompt is used to verify those settings prior to enabling the card.
RCAP	ND2	Remote Capabilities Network Name Display type 2 signaling. All nodes must use same RCAP.

LD 17 – Configure the ISL D-channel for the DCHIP card (Large systems) (Part 3 of 3)

Prompt	Response	Description
...		
SIDE	(USR)	Meridian 1 MSDL acts as User side of ISL. The IP Trunk 3.0 DCHIP card acts as the Network side of ISL.
RLS	25	Release ID of PBX at the far end of the D-Channel. If the far end has an incompatible release, it prevents sending of application messages.
...		

Use LD 17 to configure the ISL D-channel for the DCHIP card in Small systems.

LD 17 – Configure the ISL D-channel for the DCHIP card (Small systems) (Part 1 of 2)

Prompt	Response	Description
REQ	CHG	Add new data
TYPE	ADAN	Type of data block
ADAN	NEW DCH x	Action Device and Number, where: x = 0 – 79
CTYP	DCHI	Card Type. SDI/DCH card (configure the option switches and jumper straps on the SDI/DCH for RS422 DTE mode operation.
CDNO	1-9	Card number
PORT	1 or 3	Port Number must be 1 or 3.

LD 17 – Configure the ISL D-channel for the DCHIP card (Small systems) (Part 2 of 2)

Prompt	Response	Description
USR	ISLD	User. Dedicated Mode ISDN Signaling Link
IFC	SL1	Interface type for D-channel: Meridian Customer Defined Network (MCDN) Note: The IFC entry must match the protocol entered in OTM's ITG Node Properties, Card Configuration, Protocol pull-down menu.
ISLM	xxx	Integrated Service Signaling Link Maximum CHIDs, where: $x = 1 - 382$ ISLM is the maximum number of ISL trunks controlled by the D-channel. There is no default value.
...		
SIDE	(USR)	Meridian 1 Option 11C SDI/DCH card acts as User side of ISL. The DCHIP card acts as the Network side of ISL.
RLS	25	Release ID of PBX at the far end of the D-Channel. If the far end has an incompatible release, it prevents sending of application messages.
RCAP	ND2	Network Name Display type signalling. All nodes must use same RCAP.
...		

Configure the ISL D-channel on the Meridian 1 for the DCHIP card for IP Trunk 3.0

Because Succession Communication Server for Enterprise (CSE) 1000 Release 2 and IP Peer Networking 1.0 do not support QSIG, only the MCDN protocol (SL1) is supported.

LD 17 – Configure the ISL D-channel for the DCHIP card (Large and Small systems) (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	Add new data.
TYPE	ADAN	Type of Data Block
ADAN	NEW DCH x	Action Device and Number
CTYP	DCHI	Card Type – Option 11C and Option 11C Mini. Optional for Large systems.
	MSDL	Card Type – Recommended for all other Meridian 1s
GRP	x	Network Group number = 0 – 4. Applies to Option 81C only. Network Group number = 0 – 7. Applies to Option 81C with Fiber Network Fabric only
DNUM	xx	Device Number for I/O ports= 0 – 15. Applies to MSDL cards only.
CDNO	x	Card number = 1 – 9. Applies to Option 11C.
PORT	x	Port number = 0 – 3 for MSDL card = 1 or 3 for DCHI on Option 11C
...		
USR	ISLD	User
IFC	SL1	Interface type for D-channel
ISLM	382	Maximum number of Integrated Service Signaling Links

**LD 17 – Configure the ISL D-channel for the DCHIP card (Large and Small systems)
(Part 2 of 2)**

Prompt	Response	Description
...		
SIDE	USR	Meridian 1 node type
...		

Note: The IFC response entry must have the protocol entered in OTM's ITG Node Properties – Card Configuration Protocol pull-down menu.

The MSDL card does not apply to Option 11C and Option 11C Mini; therefore the DCGI prompts and responses apply. The feature requires the option switches on the Option 11C SDI/DCH card to be set for RS-422 mode operation.

Configure ISDN feature in Customer Data Block

Use LD 15 to configure the ISDN feature in the Customer Data Block.

LD 15 – Configure ISDN feature in Customer Data Block (Part 1 of 2)

Prompt	Response	Description
REQ	CHG	Change customer data block.
TYPE	NET_DATA	Gate-opener for networking features
CUST	xx	Customer number associated with this Customer Data Block
OPT	a....a	Options

LD 15 – Configure ISDN feature in Customer Data Block (Part 2 of 2)

Prompt	Response	Description
AC2	aaa bbb ccc	ESN call types under AC2 for the INAC feature. For example, NPA NXX INTL SPN LOC. INAC stands for automatic insertion of the ESN access code on incoming calls. Note: By default, the INAC feature puts all ESN call types except for CDP under AC1. Enable or disable INAC per trunk route in LD 16 in the ISDN section of the Route Data Block.
ISDN	YES (NO)	Enter YES to configure IP Trunk 3.0 routes.
- PNI	(0) – 32700	Private Network Identifier. Configure the PNI to 1 or other non-zero value to support Meridian Customer Defined Network (MCDN) features that use non-call-associated signaling, such as Network Ring Again (NRAG) Network Message Services (NMS), Network ACD (NACD). Each feature needs ISDN signaling to be sent across the Meridian 1 network in the absence of a call. Note: The PNI in the Customer Data Block must be the same as the PNI configured in the Route Data Block at the far-end for outgoing calls from the far-end toward this Meridian 1 node.
...	...	...

Configure IP Trunk 3.0 TIE trunk routes

Use LD 16 to configure the IP Trunk 3.0 TIE trunk routes.

Note: Trunk routes must be configured as TIE routes.

LD 16 – Configure the IP Trunk 3.0 TIE Trunk Route Data Block (Part 1 of 4)

Prompt	Response	Description
REQ	NEW	Add new data.
TYPE	RDB	Route Data Block. Configuration parameters that apply to all trunks in this route.
CUST	xx	Customer number associated with this route, as defined in LD 15.
ROUTE	xxx	Route Number, where: x = 0 – 511
DES	IP TRUNK	16-character designator is "IP TRUNK" Specific description if more than one IP Trunk 3.0 route exists.
...		
TKTP	TIE	Trunk Type. The trunk type for IP Trunk 3.0 trunks must be set to TIE.
SAT	(NO) YES	Satellite control (SAT) must be set to NO to enable Trunk Optimization before answer (TRO) and Trunk Anti-Tromboning (TAT). For IP Trunk 3.0, fallback to circuit-switched trunks does not depend on SAT=YES.
...		
DTRK	(NO)	Digital Trunk Route. IP Trunk 3.0 trunks are analog only. They do not support circuit-switched data from MCA or ISDN BRI terminal adaptors.

LD 16 – Configure the IP Trunk 3.0 TIE Trunk Route Data Block (Part 2 of 4)

Prompt	Response	Description
ISDN	YES	Integrated Services Digital Network.
MODE	ISLD	Mode of Operation. Route uses ISDN Signaling Link in dedicated mode. Note: ISLD is allowed when ISDN = YES and the ISL package 147 is equipped. ISLD is allowed only on ISA and TIE trunks.
DCH	xxx	D-channel number, where: x = 0 – 255 for Large systems. x = 0 – 79 for Small systems.
IFC	SL1 ESGF ISGF	Meridian Customer Defined Network (MCDN) is required for Small systems. ESIG interface with GF platform (QSIG) ISIG interface with GF platform (QSIG) The IFC of the Route Data Block must match the IFC of the ISL D-Channel in the configuration record
PNI	(0) – 32700	Private Network Identifier. Configure the PNI to 1 or other non-zero value to support Meridian Customer Defined Network (MCDN) features that use non-call-associated signaling, such as Network Ring Again (NRAG) Network Message Services (NMS), Network ACD (NACD). Each feature needs ISDN signaling to be sent across the Meridian 1 network in the absence of a call. Note: The PNI in the Customer Data Block must be the same as the PNI configured in the Route Data Block at the far-end for outgoing calls from the far-end toward this Meridian 1 node.
NCNA	(YES) NO	Network Calling Name allowed

LD 16 – Configure the IP Trunk 3.0 TIE Trunk Route Data Block (Part 3 of 4)

Prompt	Response	Description
NCRD	(NO) YES	Network Call Redirection allowed
CTYP		Call Type for outgoing call dialed with the route access code (ACOD). Set to appropriate call type for IP Trunk 3.0 node numbering plan in order to make test calls using ACOD.
INAC	(NO) YES	INAC stands for automatic insertion of the ESN access code on incoming calls, according to ISDN call types corresponding to NPA NXX INTL SPN LOC, etc. Note: Using INAC=YES can simplify the configuration of the ESN RLBs and DGT. It is recommended for MCDN features with non-call-associated signalling; for example, NMS, NACD, NRAG. Note: By default, the INAC feature puts all ESN call types except for CDP under AC1. If any call types must go under AC2 for INAC, use LD 15 to configure them at the AC2 prompt at the Customer Data Block.
...		
ICOG	IAO	Incoming and/or Outgoing trunk. Incoming and Outgoing.
SRCH	LIN	Linear search method. See Note 1.

LD 16 – Configure the IP Trunk 3.0 TIE Trunk Route Data Block (Part 4 of 4)

Prompt	Response	Description
SIGO	(STD) ESN5	Standard signaling arrangement ESN 5 signaling Note: Unless ESN5 is used, SIGO (outgoing signaling protocol) must be set to STD. Note: If SIGO equals ESN5: (1) Select SL1ESN5 from the pull-down list in the Protocol field in the ITG Node Properties configuration tab. (2) Select SL1ESN5 from the pull-down list in the Remote Capabilities field in the OTM Node Dialing plan General tab for each destination node that uses ESN5.
CNTL	YES	
NEDC	ETH	Near End Disconnect Control from either originating or terminating side.
FEDC	ETH	Far End Disconnect Control from either originating or terminating side.
...		

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Configure Succession Media Card 32-port and ITG-Pentium 24-port trunk cards and units

Use LD 14 to configure the Succession Media Card 32-port and ITG-Pentium 24-port trunk cards and units. Record the first CHID for each IP trunk card on the IP Trunk 3.0 Installation Summary Sheet.

LD 14 – Configure Succession Media Card 32-port and ITG-Pentium 24-port trunk cards and units (Part 1 of 5)

Prompt	Response	Description
REQ	NEW XX	Add new data, where: xx = 1 – 24 for NT0961AA ITG-Pentium 24-port trunk card xx = 1 – 32 for NTVQ90BA Succession Media Card 32-port trunk card When using REQ = NEW XX, configure only one IP trunk card at a time. When using REQ = NEW XX, CHID is incremented for each of the new units created. It might be necessary to configure partial IP trunk cards due to WAN traffic capacity limitations, or Leader and DCHIP card real-time capacity for very Large nodes and networks.
TYPE	TIE	Trunk Type TIE is the only supported trunk type for IP Trunk 3.0 trunks. Error message SCH5787 is printed if an attempt is made to configure non-TIE trunks as IP Trunk 3.0 trunks.

LD 14 – Configure Succession Media Card 32-port and ITG-Pentium 24-port trunk cards and units (Part 2 of 5)

Prompt	Response	Description
TN	l s c u	Terminal Number for Large systems, where: l = loop, s = shelf, c = card, u = unit.
	c u	Terminal Number for Small systems, where: c = card, u = unit.
DES		Always perform the NEW XX for unit 0 on the IP trunk card.
		16 character descriptive designator for the IP trunk card.
		See Note 1.
	hhhh:hh:hh:hh:hh	For unit 0. The IP trunk card management MAC address.
	xxx.xxx.xxx.xxx	For units 1 – 23. The IP trunk card management IP address.
XTRK	ITG1	Extended Trunk Type: IP trunk card (1-slot or 2-slot assembly).
	ITG2	
MAXU	xx	Maximum number of ports on this IP trunk card, where: xx = 32 for the NTVQ90BA Succession Media Card 32-port trunk card xx = 24 for the NT0961AA ITG-Pentium 24-port trunk card
...		Note: A warning message is printed if a number larger than 24 is entered for MAXU. Ignore this warning for the Succession Media Card 32-port trunk card.
CUST	xx	Customer Number, as defined in LD 15.

LD 14 – Configure Succession Media Card 32-port and ITG-Pentium 24-port trunk cards and units (Part 3 of 5)

Prompt	Response	Description
RTMB	1 –382	Route number and Member number. Assign route member numbers to cards in the same order as the default order in the OTM ITG ISDN IP Trunks window. The trunk route member number matches the standard First CHID for the trunk unit 0 in order to facilitate administration and maintenance.

LD 14 – Configure Succession Media Card 32-port and ITG-Pentium 24-port trunk cards and units (Part 4 of 5)

Prompt	Response	Description
CHID	xxx	First Channel ID for unit 0 on this IP trunk card, where: xxx = 1 – 382 for the NT0961AA ITG-Pentium 24-port trunk card and the NTVQ90BA Succession Media Card 32-port trunk card Standard First CHID Configuration (24-port and 32-port): Leader 0: – 1 Leader 1: – 25 (24-port card) or 33 (32-port card) Follower: – 49 (24-port card) or 65 (32-port card) Follower: – 73 (24-port card) or 97 (32-port card) Follower: – 97 (24-port card) or 129 (32-port card) Follower: – 121 (24-port card) or 161 (32-port card) Note: For nodes containing a mixture of 24-port and 32-port IP trunk cards, determine the starting CHID by adding the number of channels (ports) on the previous card to the CHID of the previous card. Example: Leader 0: – 1 (24-port card) Leader 1: – 25 (1 + 24) (32-port card) Follower: – 57 (25 + 32) (32-port card) The same First CHID must be entered in OTM 2.0 ITG ISDN IP Trunk Node Properties, Card Configuration, “First CHID” field for this card. If this is not done, the trunk unit seized by the core switch does not match the trunk unit seized on the IP trunk card and the calls fall. The standard First CHID matches the trunk route member number for the trunk unit 0 in order to facilitate administration and maintenance.
...		

LD 14 – Configure Succession Media Card 32-port and ITG-Pentium 24-port trunk cards and units (Part 5 of 5)

Prompt	Response	Description
STRI	WNK	Start Arrangement Incoming. Wink Start is preferred for IP Trunk 3.0.
STRO	WNK	Start Arrangement Outgoing. Wink Start is preferred for IP Trunk 3.0.
SUPN	YES	Answer supervision is required.
...		
CLS	DIP	Class of Service. Dial Pulse is required for IP Trunk 3.0 to avoid busying multiple Digitone receivers when IP trunk card faults occur. Note: Trunks must always be set to DIP. If SIG0=ESN5 in the RDB, the Meridian 1 does not allow CLS = DIP in LD 14. To avoid this problem and retain ESN5 signaling, set SIG0=STD in RDB (LD 16). Then provision CLS = DIP in LD 14 for IP Trunk 3.0. After all trunks have been programmed, in LD 16 change the RDB back to SIG0=ESN5.
...		

Note: Use the “NEW XX” command to assign DES equal to the IP trunk card management interface IP address; for example: 10.1.1.1. For unit 0, use CHG command to assign DES equal to the IP trunk card management interface MAC address; for example: 00:60:38:01:06:C6. To find the management MAC address, refer to the IP Trunk 3.0 Installation Summary Sheet. The management MAC address is labeled on the IP trunk card faceplate as the “motherboard Ethernet address.” Alternatively, use the ITG shell command “ifShow” to display the Ethernet address for InIsa (unit number 0).

Configure dialing plans within the corporate network

Configure the dialing plan by programming LDs 86, 87, and 90 as required.

Configure the Meridian 1 ESN by creating or modifying data blocks in LDs 86, 87, and 90, as required. The Meridian 1 and OTM IP Trunk 3.0 dialing plan information must correspond.

Make the IP Trunk 3.0 the first-choice, least-cost entry in the Route List Block

When adding IP Trunk 3.0 TIE trunks to an existing ESN, a common practice is to create a new Route List Block (RLB) for ESN translations that are to be routed by the IP Trunk 3.0 network. Insert the new IP Trunk 3.0 route ahead of the existing alternate routes for circuit-switched facilities, which are therefore shifted to the next higher entry number. Increment the ISET (initial set) if Call-Back Queueing or Expensive Route Warning tone are being used.

Turn on Step Back on Congestion for the IP Trunk 3.0 trunk route

For the IP Trunk 3.0 trunk route entry in the Route List Block (RLB), enter RRA at the Step Back on Congestion (SBOC) prompt. This enables fallback to alternate circuit-switched trunk routes in the following situations:

- due to network QoS falling below the defined threshold for the IP Trunk 3.0 node
- when there are no ports available at the destination IP Trunk 3.0 node

Turn off IP Trunk 3.0 route during peak traffic periods on the IP data network

Based on site data, if fallback routing occurs frequently and consistently for a data network during specific busy hours (for example, every Monday 10-11am, Tuesday 2-3pm), these hours should be excluded from the RLB to maintain a high QoS for voice services. By not offering voice traffic to a data network during known peak traffic hours, the incidence of conversation with marginal QoS can be minimized.

The time schedule is a 24-hour clock which is divided up the same way for all 7 days. Basic steps to program Time of Day for IP Trunk 3.0 routes are as follows:

- 1 Go to LD 86 ESN data block to configure the Time of Day Schedule (TODS) for the required IP Trunk 3.0 control periods.
- 2 Go to LD 86 RLB and apply the TODS on/off toggle for that route list entry associated with an IP Trunk 3.0 trunk route.

ESN5 network signaling

IP Trunk 3.0 and ITG Trunk 2.x support a mixed network of remote nodes with ESN5 and standard (non-network) signaling. ESN5 insert the Network Class of Service (NCOS) prefix before the dialed numbers. Ensure that if ESN5 is to be used, that it is provisioned both on the IP trunk cards and the Meridian 1 Route Data Block (RDB) for that node. However, this does not guarantee a satisfactory NCOS value.

For example, the network might contain some ITG Trunk 1.0 basic trunk signaling nodes or other IP telephony gateways that use H.323 V2 instead of SL-1 (MCDN) signaling and do not support ESN5. An ESN5 node that interworks with non-ESN5 IP telephony gateways should have the default ESN prefix correctly provisioned. The application defaults to an NCOS of "0". If this is unsatisfactory, it is necessary to configure an ESN5 prefix for the non-ESN5 IP telephony gateways by issuing the command **esn5PrefixSet** from the ITG shell CLI on all IP trunk cards in the ESN5 node. To verify the default ESN5 value that will be added for all incoming calls from non-ESN5 IP telephony gateways, use the command **esn5PrefixShow** at the ITG shell CLI.

If IP Trunk 3.0 nodes that are to support ESN5 signaling are configured in the ITG Node Properties window – Configuration tab – Protocol field. Select **SL1ESN5** from the drop-down menu.

There are three possible scenarios where ESN5 prefixes are inserted. They are as follows:

- 1 a non-ESN5-compatible node calling an ITG Trunk 2.x node or calling an IP Trunk 3.0 node provisioned in the Dial Plan table as SL-1
- 2 remote nodes calling an ESN5 IP Trunk 3.0 node using the Nortel Networks inter-operability non-standard data format, if the originating call does not use ESN5
- 3 remote nodes calling an ESN5 IP Trunk 3.0 node that do not support the MCDN protocol

When an IP Trunk 3.0 node is configured as an ESN5 node and a call is received from a remote node that does not provide the ESN5 data, the configured ESN5 prefix is inserted in front of the called number. (The remote node could be an IP Trunk 3.0, Succession CSE 1000 Release 2, or other gateway using the inter-operability format, or could be "H.323 only".)

When the IP Trunk 3.0 node is configured to use standard signaling and the Dial Plan entry indicates ESN5 capability, the ESN5 prefix is inserted in front of the called number.

For more information see "Non-Gatekeeper-resolved (local) Dialing Plan" on page 406.

Special dial 0 ESN translations

Special dial 0 ESN translations are not supported on IP Trunk 3.0 trunks because they are not leftwise-unique.

Use IP Trunk 3.0 route as first choice for Group 3 fax

The IP Trunk 3.0 gateway supports Group 3 fax modems by means of T.38 protocol.

Use the traditional PSTN for general modem traffic

General modem traffic (for example, V.36, V.90) cannot be supported on ITG. The Meridian 1 routing controls must be configured to route modem traffic over circuit-switched trunks instead of over IP Trunk 3.0.

Use the ESN TGAR, NCOS, and facility restriction levels to keep general modem traffic off of the IP Trunk 3.0 route. Use caution before setting TGAR=YES in the ESN block in LD 86 since this will impact all trunk access for ESN calls. New Flexible Code Restriction (NFCR) can be used to block direct access to trunk routes for stations with CLS=CTD.

Note: When adding IP Trunk 3.0 trunks to an existing Meridian 1 system, changes to ESN translation should be made last, after the IP Trunk 3.0 dialing plan and the entire IP Trunk 3.0 network is tested with calls dialed using the Route Access Code. In LD 16, for prompt CTYP, set to appropriate call type for the IP Trunk 3.0 node numbering plan in order to make test calls using ACOD. After the correct operation of the entire IP Trunk 3.0 network has been verified, ESN translations that are intended to be routed through IP Trunk 3.0 TIE trunks are then changed so as to use the new RLI.

LD 86 – Configure Electronic Switched Network (ESN) (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	Add new data.
CUST	xx	Customer number associated with this function, as defined in LD 15.
FEAT	ESN	Electronic Switched Network data block.
...		
CDP	YES	Co-ordinated Dialing Plan
...		
AC1	xx	One-or-two digit NARS/BARS Access Code 1.
AC2	xx	One-or-two digit NARS Access Code 2.

LD 86 – Configure Electronic Switched Network (ESN) (Part 2 of 2)

Prompt	Response	Description
TGAR	(NO) YES	Check for Trunk Group Access Restrictions on ESN calls. Set TGAR = YES if required to block non-fax modem traffic from the IP Trunk 3.0 route. Caution: This will impact all trunk access for ESN calls. TGAR and TARG values must be carefully coordinated for all stations, trunks, and routes when setting TGAR=YES in the ESN block.
...		

LD 86 – Configure Route List Block with Step Back on Congestion on ISDN (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	Add new data.
CUST	xx	Customer number associated with this function, as defined in LD 15.
FEAT	RLB	Route List Data Block.
RLI	xxx	Route List Index to be accessed, where xxx is: 0-127 for BARS 0-255 for NARS 0-999 for FNP
ENTR	xx	Entry number for NARS/BARS Route List, where xx is: 0-63 for BARS/NARS
...		
ROUT	0-511	Route number that references an IP Trunk 3.0 trunk route.

LD 86 – Configure Route List Block with Step Back on Congestion on ISDN (Part 2 of 2)

Prompt	Response	Description
TOD	0	Time of Day Schedule If required, turn off IP Trunk 3.0 trunk route during peak traffic periods on the IP data network
FRL		Facility Restriction Level Set FRL appropriately to control access to the IP Trunk 3.0 route.
DMI		Do not use a Digit Manipulation table in the RLB entry for the IP Trunk 3.0 route. For ESN translations that are not used for non-call-associated signalling, digit manipulation can be defined on the IP Trunk 3.0 node dialing plan in the Digits dialed tab.
SBOC	RRA	Step Back on Congestion. Re-route all. Enter RRA at the SBOC prompt to enable Fallback to alternate circuit-switched trunk route
...		

Note: IP Trunk 3.0 must have SBOC=RRA for QoS fallback to work.

LD 87 – Configure the Co-ordinated Dialing Plan (CDP) (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	Add new data.
CUST	xx	Customer number
FEAT	CDP	Coordinated Dialing Plan.

LD 87 – Configure the Co-ordinated Dialing Plan (CDP) (Part 2 of 2)

Prompt	Response	Description
TYPE	DSC TSC	Distant Steering Code. Trunk Steering Code.
...		
RLB	xx	Route List Entry created in LD 86.
...		

LD 90 – Configure dialing plan

Prompt	Response	Description
REQ	NEW	Add new data.
CUST	xx	Customer number associated with this function, as defined in LD 15.
FEAT		Feature.
	NET	Network translation tables.
TRAN		Translator.
	AC1	Access Code 1 (NARS/BARS).
	AC2	Access Code 2 (NARS).
TSC		Type of data block.
	NPA	Numbering Plan Area Code.
	NXX	Central Office Translation.
	LOC	ESN Location Code Translation.
	SPN	Special Code Translation.
...		
RLI	xxx	Route List Index created in LD 86.

Disable the Succession Media Card 32-port and ITG-Pentium 24-port trunk cards

In order to transmit the card properties from OTM 2.0 to the Succession Media Card 32-port and ITG-Pentium 24-port trunk cards, the IP Trunk 3.0 trunks must be in the disabled state.

To disable a Succession Media Card 32-port and ITG-Pentium 24-port trunk card, use the following command in LD 32 or in OTM Maintenance Windows:

DISI l s c u

Wait for the system message NPR0011 to be displayed.

Requested pack is no longer busy and has been disabled. Indication that the DISI L S C command has been completed.

This indicates that the DISI command has been completed.

The status of the Succession Media Card 32-port and ITG-Pentium 24-port trunk card in OTM is updated to disabled.

The IP trunk cards must be enabled later after the card properties and optionally, the IP Trunk 3.0 software, has been transmitted from OTM to the IP trunk cards.

Configure IP Trunk 3.0 data in OTM 2.0

Before the IP Trunk 3.0 data is configured in OTM, obtain all the IP addresses for the new IP Trunk 3.0 node from the network administrator and add them to the installation summary sheet. Use the IP Trunk 3.0 Installation Summary Sheet to facilitate data entry into OTM 2.0. Obtain the node IP addresses of any existing IP Trunk 3.0 nodes in the network.

Note: Refer to “ITG Engineering Guidelines” on page 107 for information on IP Trunk 3.0 IP address requirements.

An IP Trunk 3.0 node is a collection of Succession Media Card 32-port and ITG-Pentium 24-port trunk cards in a Meridian 1 system for a selected customer. Each node in the IP Trunk 3.0 network has a property sheet that configures the options that apply to the node's IP trunk cards.

OTM stores the Node Properties data. This data generates the BOOTP.1 file. The data is transmitted to the Active Leader.

Note: The bootptab file is a configuration file that downloads to the Active Leader card. It contains the list of cards and related IP and MAC addresses for the node. Bootptab is short for "bootp table". When transmitted to the IP Trunk 3.0 Active Leader IP trunk card, it is renamed "BOOTP.1".

Add an IP Trunk 3.0 node in OTM 2.0 manually

This section uses the OTM 2.0 ITG ISDN IP Trunk application to manually add and configure an IP Trunk 3.0 node and add IP trunk cards to the node. A network of multiple IP Trunk 3.0 nodes can be configured and managed from the same OTM PC. Every IP Trunk 3.0 node must first be added manually on the OTM PC and the OTM IP Trunk 3.0 configuration data must be transmitted to the IP Trunk 3.0 node during installation.

After adding a new IP Trunk 3.0 node on the OTM PC, the dialing plans for all existing IP Trunk 3.0 nodes must be manually updated to include the destination node dial plan digits entries for the new IP Trunk 3.0 node.

There are several tabs across the top of the ITG Node Properties window. The following sections describe the windows that appear when each of these tabs is clicked.

Add an IP Trunk 3.0 node and configure general node properties

Follow the steps in Procedure 16 to add an IP Trunk 3.0 node and configure general node properties.

Procedure 16**Adding a node and configuring general node properties**

- 1 Launch OTM 2.0 on the OTM PC.
- 2 From the OTM Navigator window, double-click the Services folder and double-click the **ITG ISDN IP Trunks** icon. The IP Telephony Gateway- ISDN IP Trunk Main window opens.
- 3 Select **Configuration | Node | Add** in the IP Telephony Gateway – ISDN IP Trunk Main window. The Add ITG Node window appears.
- 4 In the Add ITG Node window, leave the default selections **Meridian 1** and **Define the node configuration manually**. Click **OK**. The Node Properties General window appears. See Figure 45 on page 297.

Figure 45
ITG Node Properties – General tab

New ITG Node

General | Configuration | DSP Profile | SNMP Traps/Routing and IPs | Accounting Server | Security

Node Location

MAT site: [dropdown]
MAT system: [dropdown]
Customer: [dropdown]
Node number: 1 [dropdown]
Type: Meridian 1 - Unknown

Network Connections

☒ Use separate subnets for voice and management

Voice LAN Node IP: [. - . -]
Management LAN gateway IP: [. - . -]
Management LAN subnet mask: [. - . -]
Voice LAN subnet mask: [. - . -]

Last modified:
Last downloaded:
Node sync status:

Comments: [text area]

OK Cancel Apply Help

Set node location properties

- 5 Set Node Location properties: select the **OTM site**, **OTM system**, **Customer**, and **Node number** from the drop-down list boxes.

Note: The Site name, Meridian 1 system name, and Customer must exist in the OTM Navigator before a new IP Trunk 3.0 node can be added.

End of Procedure

Single vs. separate subnets for TLAN and ELAN

Recommendation

Nortel Networks recommends that separate subnets and separate ELAN and TLANs be used for the IP Trunk 3.0 voice and management networks (TLAN and ELAN).

Separate subnets implies the following:

- separate port groups on hubs or switches for TLANs and ELAN
- separate IP Gateway (router) interfaces with one subnet per router interface

For traffic reasons, use separate subnets for nodes consisting of multiple ITG-Pentium 24-port trunk cards and Succession Media Card 32-port trunk cards.

Refer to the Engineering Guidelines sections “Set up a system with separate subnets for voice and management” on page 193 and “Single subnet option for voice and management” on page 196.

If the single subnet option is selected, the ELAN is used for the voice and management network and all voice and management data goes through the 10BaseT management Ethernet interface (InIsa0) on the motherboard of the IP trunk card.

Configure Network Connections

Follow the steps in Procedure 17 to configure the network connections.

Procedure 17 Configuring network connections

- 1 Decide subnet settings:
 - a. If using separate subnets for the voice (TLAN) and management (ELAN) networks, accept the default setting **Use separate subnets for voice and management** check box.
 - b. If using the same subnet for the voice and management network (ELAN), uncheck the **Use separate subnets for voice and management** check box. The window changes.

- 2 If using the default setting **Use separate subnets**, perform steps a-d.
 - a. Enter the **Voice LAN Node IP address**.
 - b. Enter the **Management LAN gateway IP address**.
 - c. Enter the **Management LAN subnet mask**.
 - d. Enter the **Voice LAN subnet mask** fields.

The Voice LAN Node IP address on the **General** tab and the Voice IP and Voice LAN gateway IP addresses for Leader 0 and Leader 1 on the **Card Configuration** tab must be on the same subnet.

- 3 If **Use separate subnets** was unchecked, perform steps a-c.
 - a. Enter the **Management LAN Node IP**.
 - b. Enter the **Management LAN gateway IP address**. The Management gateway (router) also functions as the voice gateway (router).
 - c. Enter the **Management LAN subnet mask**.

The Management LAN Node IP and Management gateway IP addresses on the **General** tab and the Management IP for Leader 0, Leader 1 and all Follower cards on the **Card Configuration** tab must be on the same subnet.

Note: Do not press OK or Apply until the Configuration tab has been completed.

Configure card properties

Procedure 18 on page 300 explains how to configure the IP trunk card roles, IP addresses, TN, card density and D-Channel settings. Each IP Trunk 3.0 node requires a Leader 0 card and one DCHIP card (which can be Leader 0) and can have a Leader 1 card, one or more Follower cards, and additional DCHIP cards (which can be Leader 1 or Follower cards). Either Leader 0 or Leader 1 can have the Active Leader status. On system power-up, Leader 0 normally functions as the Active Leader and Leader 1 as the Backup Leader.

At other times, the Leader card functions can reverse with Leader 1 working as the Active Leader and Leader 0 working as the Backup Leader.

Procedure 18

Configuring the IP trunk card

- 1 From the **General** tab, click the **Configuration** tab. If the single subnet option in the General tab was selected earlier, the Voice IP and Voice LAN gateway IP fields are greyed-out.
- 2 Select the **Card role** from the drop-down list box.

When adding the first card, select the card role **Leader 0**. When adding the second card, select the card type **Leader 1**. When adding additional cards, select the card type **Follower**. Configure the DCHIP and D-Channel information.
- 3 If **Use separate subnets** in the **General** tab was checked earlier, perform steps a-d.
 - a. Enter the **Management IP** address.
 - b. Enter the **Management MAC address**. It is the motherboard Ethernet address. Find it on the faceplate label of the card currently being configured. It is also identified as `lnsa0` on the card startup messages and by the `ifShow` command in the ITG shell.
 - c. Enter the **Voice IP address** (see Notes 1 and 2).
 - d. Enter the **Voice LAN gateway IP address** (see Notes 1 and 2).

Figure 46
Configuration tab

New ITG Node

General | **Configuration** | DSP Profile | SNMP Traps/Routing and IPs | Accounting Server | Security

Define the list of cards for this node. To create the list, enter the values and click Add. Select a card in the list for change, or delete.

Card properties:

Card role: Leader0 Card IN: - -

Management IP: . . . Card Density: 24 ports

Management MAC: - - - - - D-Channel: 0 ☒ DCHIP is on this card

Voice IP: . . . Protocol: SL1 ESN5

Voice LAN gateway IP: . . . First CHID: 1

Sync status: Add Change Delete Host Names

Card role	Management IP	MAC address	Voice IP	Voice LAN gateway	Card TN

OK Cancel Apply Help

Note 1: The TLAN Node IP address on the **General** tab and the TLAN IP and TLAN gateway IP addresses for Leader 0 and Leader 1 on the **Card Configuration** tab must be on the same TLAN (voice) subnet.

Note 2: Each Follower card can optionally have their TLAN IP and TLAN gateway IP on a different TLAN subnet from Leader 0 and Leader 1.

- 4 If **Use separate subnets** in the **General** tab was unchecked earlier, perform steps a and b:
 - a. Enter the **Management IP** address.
 - b. Enter the **Management MAC** address. It is the motherboard Ethernet address. Find it on the faceplate label of the IP trunk card currently being configured. It is also identified as InIsa0 on the card startup messages and by the ifShow command in the ITG shell.

The ELAN Node IP and ELAN gateway IP addresses on the **General** tab and the ELAN IP address for Leader 0, Leader 1 and all Follower cards on the **Card Configuration** tab must be on the same Voice/Management ELAN subnet.

- 5 Enter the **Card TN**. For Large systems, the card TNs are validated for loop, shelf and card separated by dashes. For Small systems, only the card number is required.
- 6 Select the **Card Density** from the drop-down list box: 24 ports for NT0961AA; 32 ports for NTVQ90BA.
- 7 Enter the ISL **D-channel** logical device number. Its range is 0 – 255 for Large systems; 0 – 79 for Small systems.
- 8 If the card will be a DCHIP card, check the **DCHIP is on this Card** check box. The DCHIP card must have an NTWE07AA DCHIP PC Card with an NTCW84EA Pigtail cable installed and must be connected to the ISL DCH port on the MSDL or SDI/DCH card.

Note: The standard configuration is to put the first DCHIP PC Card on Leader 1 and additional DCHIP PC cards on Follower cards.

- 9 Select the **Protocol** for the DCHIP card from the drop-down list box. The protocol must match the protocol configured in LD 16 in the Route Data Block at the IFC prompt with respect to SL1, or ESGF/ISGF QSIG interface (IFC), and in LD 17 at the IFC prompt under ADAN DCH. In LD 16, if SIGO is set to STD, select the SL1 protocol. If SIGO is set to ESN5, select SL1 ESN5 protocol. In a mixed ESN5 and non-ESN5 network, configure an ESN5 prefix for the non-ESN5 IP telephony gateways by using the "esn5PrefixSet" command from the ITG shell CLI. See "Change default ESN5 prefix for non-ESN5 IP telephony gateways" on page 335.

The choices are SL1, SL1 ESN5, ESIG and ISIG for networks consisting of Meridian 1 Large systems. For networks that include Meridian 1 Small systems, the choices are SL1 or SL1 ESN5.

In addition to IP Trunk 3.0 nodes, the IP telephony trunk network might also contain ITG Trunk 1.0 Basic Trunk nodes or Nortel Networks IP Telephony Connection Manager. Use H323 V2 node capability for these nodes.

Once a DCHIP for the IP Trunk 3.0 node is defined, the protocol field is greyed out when other cards in the same IP Trunk 3.0 node are selected.

- 10 Enter the **First CHID** (Channel ID) for this IP trunk card in the First CHID edit box. The First CHID range is:
- 1 – 382 for the NT0961AA ITG-Pentium 24-port trunk card
 - 1 – 382 for the NTVQ90BA Succession Media Card 32-port trunk card

The First CHID is the ISL Channel ID of Unit 0 on this IP trunk card, as configured in LD 14 for the IP trunk cards and units. Consecutive CHIDs are assigned to remaining units on the card when configuring trunks in LD 14 using the **NEW xx** command.

- 11 Click **Add** and then click **Apply**.

Note: In most cases, do not click OK until all cards are added to the IP Trunk 3.0 node and all configuration tasks completed. If OK is clicked before completing configuration, OTM exits the node property configuration session and displays the IP Telephony Gateway – ISDN IP Trunk Main Window. To complete the configuration tasks, double-click on the new IP Trunk 3.0 node in the list in the upper part of the Main Window.

- 12 Repeat steps 1 – 10 for Leader 1 and each Follower in the IP Trunk 3.0 node.

End of Procedure

Configure DSP profiles for the IP Trunk 3.0 node

Follow the steps in Procedure 19 on page 304 to select a DSP profile, set Profile Options and Codec Options and, if required, modify default DiffServ/TOS values from 0. Set these profiles once for the IP Trunk 3.0 node. In a later step, download the DSP profiles card properties to each card.

Procedure 19

Configuring DSP profiles for the IP Trunk 3.0 node

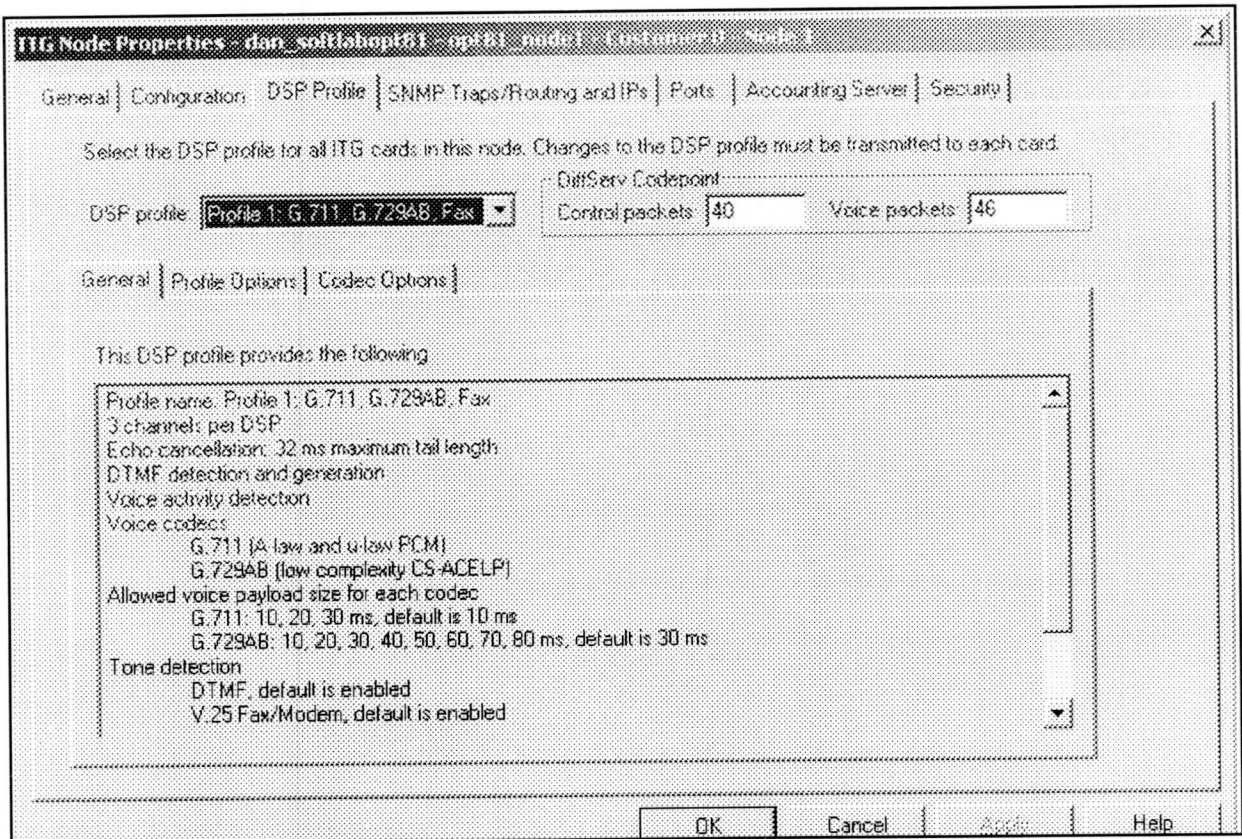
- 1 Click the **DSP Profile** tab. See Figure 47 on page 305. The **General** tab displays a detailed description of the default DSP Profile 1.
- 2 Change the default **DSP profile** from the drop-down list box, if required. There are three DSP profiles. Each profile contains two or more Codecs. All IP trunk cards in the same node share the same DSP profile.



CAUTION

The default DSP profile is Profile 1, which is appropriate for most applications. Only an expert in VoIP should modify the default DSP profile. See “IP Trunk 3.0 DSP profile settings” on page 202.

Figure 47
DSP Profile – General tab



- 3 Click the **Profile Options** tab. See Figure 48. This tab displays the default **General** and **FAX** options values according to the selected DSP profile.

Figure 48
DSP Profile – Options tab

- 4 Change the **General** and **FAX option** parameters, if required. To revert to the default settings, click **Reset Defaults**.



CAUTION

The default DSP Profile Option settings for each Codec are appropriate for most applications. Only an expert in VoIP should modify the Profile Options parameters. See "IP Trunk 3.0 DSP profile settings" on page 202.

- 5 Click the **Codec Options** tab. See Figure 49. This tab displays the default order of the preferred Codec selection for outgoing calls and shows advanced Codec parameters for the selected Codec.

Figure 49
DSP Profile – Codec Options tab

ITG Node Properties - dan_softlabopt01 - gpt01_node1 - Customer 0 - Node 1

General | Configuration | DSP Profile | SNMP Traps/Routing and IPs | Ports | Accounting Server | Security

Select the DSP profile for all ITG cards in this node. Changes to the DSP profile must be transmitted to each card.

DSP profile: Profile 1: G.711, G.729AB, Fax

DiffServ Codepoint: Control packets: 40 Voice packets: 46

General | Profile Options | Codec Options

Use the Move Up/Down buttons and check boxes to set codec negotiation order (codec on the top is used first). Change the settings for each Codec as required.

☒ G.711 [A-law and u-law PCM]

☒ G.729AB [low complexity CS-ACELP]

Move Up Move Down

G.729AB [low complexity CS-ACELP] Settings:

Voice payload size: 30

Voice playout nominal delay: 60

Voice playout maximum delay: 120

☒ Enable voice activity detection

Reset Defaults

OK Cancel Apply Help

- 6 Perform steps 6 and 7 if required. To revert to the default settings, click **Reset Defaults**.



CAUTION

The default Codec Options are appropriate for most applications. Only an expert in VoIP should modify the Codec Options parameters. See "IP Trunk 3.0 DSP profile settings" on page 202.

- 7 To turn off a Codec, click on the Codec and uncheck the checkbox.
- 8 To change the preferred order of Codec selection, for outgoing calls, if required, select the Codec and click the **Move Up** and **Move Down** buttons. The IP Trunk 3.0 node requests the Codec at the top of the list first on outgoing calls.
- 9 To enable Voice Activity Detection (VAD) for Silence Suppression, check the appropriate box. To disable VAD for Silence Suppression, uncheck the box.

End of Procedure

Change default DiffServ/ToS value for Control and Voice

Follow the steps in Procedure 20 to change the default DiffServ/ToS value for Control and Voice.

Procedure 20

Changing the default DiffServ/ToS value for Control and Voice

- 1 Enter the **DiffServ/TOS** value for **Control** and **Voice**, if required, to obtain better QoS over the IP data network (LAN/WAN). Do not change from default value of 0 unless instructed by IP network administrator.

The Type of Service (ToS) byte or Differentiated Service (DiffServ) code point determines the priority of the control and voice packets in the network router queues. The values entered in these two boxes must be coordinated across the entire IP data network. Do not change them arbitrarily.

DiffServ/TOS values must first be converted to a decimal value of the DiffServ/TOS byte in the IP packet header. For example, the 8-bit TOS field value of 0010 0100 which indicates "Precedence=Priority"; "Reliability=High" is converted to a decimal value of 36 before being entered in the Control or Voice fields.

- 2 Click **Apply**.

End of Procedure

Configure SNMP Traps/Routing and IP addresses tab

In this procedure, a maximum of eight SNMP Trap destination IP addresses and subnet masks and a maximum of eight Card Routing Table Entry IP addresses and subnet masks can be defined. These SNMP Trap and Card Routing table settings become active when the IP trunk card properties are transmitted to the IP trunk cards.

The IP trunk card assumes that the SNMP traps are sent through the ELAN, since there is no SNMP Gateway address configured in OTM 2.0. If the SNMP traps are to be sent through the ELAN, then there will be no problem. However, if the OTM 2.0 workstation is on the TLAN, SNMP traps might not reach the OTM PC. This is because the provisioned subnet of the SNMP client, based on the IP address and subnet mask, defaults to be sent to the ELAN router. The only way SNMP traps can be sent to the TLAN is if the SNMP client subnet is the same as the IP trunk card TLAN subnet.

Example:

SNMP IP = 23.11.42.52

Subnet mask = 255.255.255.0

Subnet = 23.11.42.0

IP Trunk card TLAN IP = 23.11.42.121

Subnet mask = 255.255.255.0

Subnet = 23.11.42.0

23.11.42.0 = 23.11.42.0.

Therefore, the SNMP traps will be sent to the TLAN router.



WARNING

Nortel Networks recommends the SNMP client (that is, the OTM 2.0 PC) **not** be put on the TLAN.

Placing the OTM PC on the ELAN is a more secure configuration. Additionally, incorrectly configuring the SNMP trap IP address can adversely affect routing on the IP trunk card, which can prevent the IP trunk card from sending or receiving calls.

Procedure 21

Configuring SNMP Traps/Routing and IP addresses tab

- 1 Click **SNMP Traps/Routing and IPs** tab. See Figure 50.

Figure 50

IP Trunk 3.0 Node Properties window – SNMP trap addresses/Routing table IP addresses tab

New ITG Node

General | Configuration | DSP Profile | **SNMP Traps/Routing and IPs** | Accounting Server | Security

Define the IP addresses to which SNMP traps will be sent. To create the list, type in the new values and click Add or press enter. Select an item in the list to change or delete.

SNMP traps

☐ **Enable SNMP traps**

IP address: . . .

Subnet mask: . . .

IP Address	Subnet mask

Add
Change
Delete

Card routing table entries

IP address: . . .

Subnet mask: . . .

IP Address	Subnet mask

Add
Change
Delete

OK Cancel Apply Help

- 2 Check the **Enable SNMP traps** check box to enable sending of SNMP traps to the SNMP managers that appear in the list. Enter at least one SNMP trap address if this option is checked. The SNMP trap addresses determine where event and alarm messages are sent.

Refer to “Configure OTM Alarm Management to receive SNMP traps from the IP trunk cards” on page 345 to configure OTM Alarm Notification to monitor SNMP traps for IP trunk cards.

- 3 Enter the SNMP Manager IP address in the IP Address field. Enter the Subnet mask in the **Subnet mask** field. Click **Add**. The new IP address and subnet mask appears in the SNMP Manager IP address list.

Enter SNMP trap IP addresses for OTM PCs on local and remote subnets and any other SNMP Management PCs for Alarm monitoring. All OTM PCs must have the Alarm Notification feature, as follows:

- The OTM PC on the local subnet or ELAN.
- OTM PC on a remote subnet on the customer's IP network.
- Remote support OTM PC PPP IP address (on the ELAN) configured in the Nortel Networks Netgear RM356 Modem Router, or equivalent.
- Any SNMP managers for remote alarm monitoring.

In the next step, add the SNMP trap IP addresses for remote subnets in the Card Routing Table entries IP address field.

- 4 Configure the **Card routing table entries**.

Enter the IP address and subnet mask for management hosts on remote subnets, such as SNMP manager, Radius accounting server, Management PC, Telnet and FTP clients. Click **Add**. In a later step, this information is transmitted to each IP trunk card.

The IP trunk card uses the addresses in the routing table entries to route management packets over the Management Gateway (router) on the ELAN. Without routing table entries, the IP trunk card routes management traffic over the voice LAN gateway. Sending management traffic over the voice LAN can affect voice quality.

- 5 Click **Apply**.

End of Procedure

Configure Accounting server

If a Radius Accounting Server is not used, skip this step. A Radius Accounting Server collects call records from the IP trunk cards and generates billing reports. Follow the steps in Procedure 22 on page 312 to configure a Radius Accounting Server.

Procedure 22

Configuring a Radius Accounting Server

- 1 Click the **Accounting Server** tab. See Figure 51.

Figure 51
ITG Node Properties window – Accounting Server tab

The screenshot shows the 'New ITG Node' window with the 'Accounting Server' tab selected. The window contains the following elements:

- General | Configuration | DSP Profile | SNMP Traps/Routing and IPs | Accounting Server | Security** (Tabbed interface)
- Accounting server:**
 - ☐ **Enable Radius accounting records**
 - IP address:** [- . - .]
 - Port number:** 1813
 - Key:** []
- Buttons:** OK, Cancel, Apply, Help

- 2 Click the **Enable Radius accounting records** checkbox.
- 3 Enter the Radius accounting server IP address. Add the same Accounting Server IP address that was configured in the Card Routing Table entries as discussed in "Configure SNMP Traps/Routing and IP addresses tab" on page 309.
- 4 Change the default port number from the default (1813), if required.
- 5 Enter the key. The key is a signature for authentication of the Radius records. It can be a maximum of 64 alphanumeric characters.
- 6 Click **Apply**.

End of Procedure

Set Security for OTM SNMP access

This procedure explains how to change the SNMP community names to provide better security for the IP Trunk 3.0 node. OTM uses the community name password to refresh the IP Trunk 3.0 node and card status and to control the transmitting and retrieving of files for database synchronization.

Note: To retrieve the community names if forgotten, connect a TTY to the IP trunk card maintenance port. Restart the IP trunk card. The IP trunk card displays the community name on the TTY during startup.

- 1 Click the **Security** tab. See Figure 52.

Figure 52
ITG Node Properties window – Security tab

ITG Node Properties - Admiral Kang SWLab LeftOption1 Customer 0 - Node 1

General | Configuration | DSP Profile | SNMP Traps/Routing and IPs | Ports | Accounting Server | **Security**

The SNMP read/write community name is required by OTM to access the ITG card.

OTM stores both the current and previous names. The previous name is used to access the card while changing to the new name.

	Current	Previous
Read only:	public	public
Read/write:	private	private

OK Cancel **SNMP** Help

- 2 Change the default Read only and Read/Write default community names. OTM uses the previous read/write community name to transmit the card properties. The first time data is transmitted after changing the password, OTM uses the Previous read/write password. OTM uses the changed password for all following data transmissions.

End of Procedure

Exit node property configuration session

The procedure to add an IP Trunk 3.0 node on OTM manually is complete. Press OK to save the node and card properties configuration and exit. OTM displays the IP Telephony Gateway - ISDN IP Trunk Main window. If a network of IP Trunk 3.0 nodes is to be managed from this OTM PC, add the remaining IP Trunk 3.0 nodes before configuring the dialing plan for the new IP Trunk 3.0 nodes on OTM.

Create the IP Trunk 3.0 node dialing plan using OTM

Follow the steps in Procedure 23 on page 315 to configure the IP Trunk 3.0 node dialing plan in OTM. Use this procedure to create the dialing plan for the first node in the network. This procedure also can be used to create a dialing plan for a new node in a very small network. If adding a new node to a large existing network, it is more efficient to retrieve the IP Trunk 3.0 node dialing plan from an existing node.

A dialing plan consists of a number of IP Trunk 3.0 destination nodes and one or more dialing plan entries for each destination node. Select a destination node, define the destination node protocol capability, decide if QoS monitoring is to be enabled for this destination node, and enter one or more ESN dialing plan entries for each destination node. Repeat this procedure for all destination nodes in the IP Trunk 3.0 network.

The dialing plan information entered in OTM must match the ESN data entered in the Meridian 1 overlays LD 15, LD 16, LD 86, LD 87 and LD 90. Keep the dialing plan entries consistent between the Meridian 1 and the IP Trunk 3.0 node. Transmit the dialing plan from OTM to the IP Trunk 3.0 node during installation, card replacement, when IP Trunk 3.0 nodes are added to the network, or whenever the dialing plan on OTM IP Trunk 3.0 is changed.

Each IP Trunk 3.0 trunk node shares one dialing plan for all cards in the node. The IP Trunk 3.0 node dialing plan translates the dialed digits in the Meridian 1 ISDN Signaling Call Setup message, according to ESN translation type, into the Node IP addresses of the IP Trunk 3.0 destination nodes.

Procedure 23**Configure the ITG Dialing Plan – General tab**

- 1** In the IP Telephony Gateway – ISDN IP Trunk Main window, select the new IP Trunk 3.0 node for which a dialing plan is to be built. Select menu **Configuration | Node | Dialing Plan**. The ITG Dialing Plan window appears.
- 2** In the ITG Dialing Plan window, select the menu **Configuration | Add remote node**. The ITG Dialing Plan – Remote Node Properties window appears and displays the General tab. See Figure 53 on page 316. The default Node drop-down list reads “Not defined on this OTM PC” and the Node IP address field is blank. Click the drop-down list to see a list of all the other IP Trunk 3.0 nodes configured on this OTM PC. The IP Trunk 3.0 node for which the dialing plan is being created is not seen.

Figure 53
ITG Dialing Plan – Remote Node Properties window (General tab)

ITG Dialing Plan - Remote Node Properties

General | Digits dialed

Remote ITG node configuration

Node: **Not Defined on this OTM/MAT PC** Node IP: . . .

Node Name: **Not Defined on this OTM/MAT PC** Node capability: **SL1**

Quality of Service

The Quality of Service (QoS) determines when calls to this remote fallback to the PSTN due to poor performance of the data network.

Select the QoS, where 0 means never fallback, and 5 means fallback unless the voice quality is perfect.

☒ Enable Quality of Service (QoS) monitoring

0.0 5.0

Comments

Last Modified:

OK Cancel Apply Help

- 3 Select the destination **Node** to be added from the list. OTM provides the IP Trunk 3.0 **Node IP** address in a greyed-out box and fills in the node name in the Node Name field.
- 4 Define **Node capability** for the destination node.

The default setting is **SL1**, which supports MCDN features. The Node capability field defines the D-channel protocol used by the destination IP Trunk 3.0 node. The protocol must match the protocol configured in LD 16 in the Route Data Block at the IFC prompt with respect to SL1 vs. ESGF or ISGF QSIG interface (IFC), and in LD 17 at the IFC prompt under ADAN DCH. In LD 16, if SIGO is set to STD, then select the SL1

node capability. If SIGO is set to ESN5, then select SL1ESN5 node capability. In a mixed ESN5 and non-ESN5 network, configure an ESN5 prefix for the non-ESN5 IP telephony gateways by using the “esn5PrefixSet” command from the ITG shell CLI. See “Change default ESN5 prefix for non-ESN5 IP telephony gateways” on page 335.

The choices are SL1, SL1 ESN5, ESIG and ISIG for networks consisting of Meridian 1 Large systems. For networks that include Meridian 1 Small systems, the choices are SL1 or SL1 ESN5.

New for IP Trunk 3.0, the node capability choices also include “CSE”. This is for testing purposes between IP Trunk 3.0 and a Succession CSE 1000 Release 2 endpoint.

In addition to IP Trunk 3.0 nodes, the IP telephony trunk network may contain ITG Trunk 1.0 Basic Trunk nodes or Nortel Networks IP Telephony Connection Manager. Use H.323 V2 node capability for these nodes.

Quality of Service

The default setting enables Quality of Service (QoS) monitoring. QoS monitoring allows new calls to fallback to alternate circuit-switched trunk routes when the IP network QoS falls below the configured threshold. If the default setting is changed and QoS monitoring is disabled, then the IP Trunk 3.0 node attempts to complete new calls over the IP network regardless of the IP network QoS. There can still be alternate routes, but IP Trunk 3.0 only uses them if the D-Channel connection to the local IP Trunk 3.0 node fails, if the destination node fails to respond, or if the destination node responds that all trunks are busy.

- 5 To disable QoS monitoring of a destination node, uncheck the **Enable Quality of Service (QoS) monitoring** checkbox.
- 6 Slide the Quality of Service control bar to set the QoS level. The default setting is 3 (=Good).

See “E-Model” on page 88 and Table 31 on page 186 for more details on QoS levels and MOS values.

End of Procedure

Configure Digits dialed tab

Follow the steps in Procedure 24 to configure the Digits dialed tab. Use the Digits dialed tab to configure one or more ESN translations for the current destination node. Figure 54 shows the Dialed Digits tab fields.

Procedure 24 Configuring the Digits dialed tab

- 1 Click on the **Digits dialed** tab.
OTM displays the **Digits dialed** tab.
- 2 Select the ESN translation type from the **Dial Plan** drop-down list. Add every ESN translation configured for this destination node in the Meridian 1 ESN (LD 86, LD 87 and LD 96) one at a time.
- 3 Enter the Called Number digits for the ESN translation type in the **Dial Plan Digits** field. See #2 in Figure 54 on page 319.

Note: The digits must be leftwise unique within the ESN translation types that correspond to given pair of NPI and TON values. Every Meridian 1 ESN translation type generates a unique pair of NPI and TON values by default. The default values can be manipulated in the ESN digit manipulation tables. The CTYP in the route data block defaults to Unknown (UKWN).

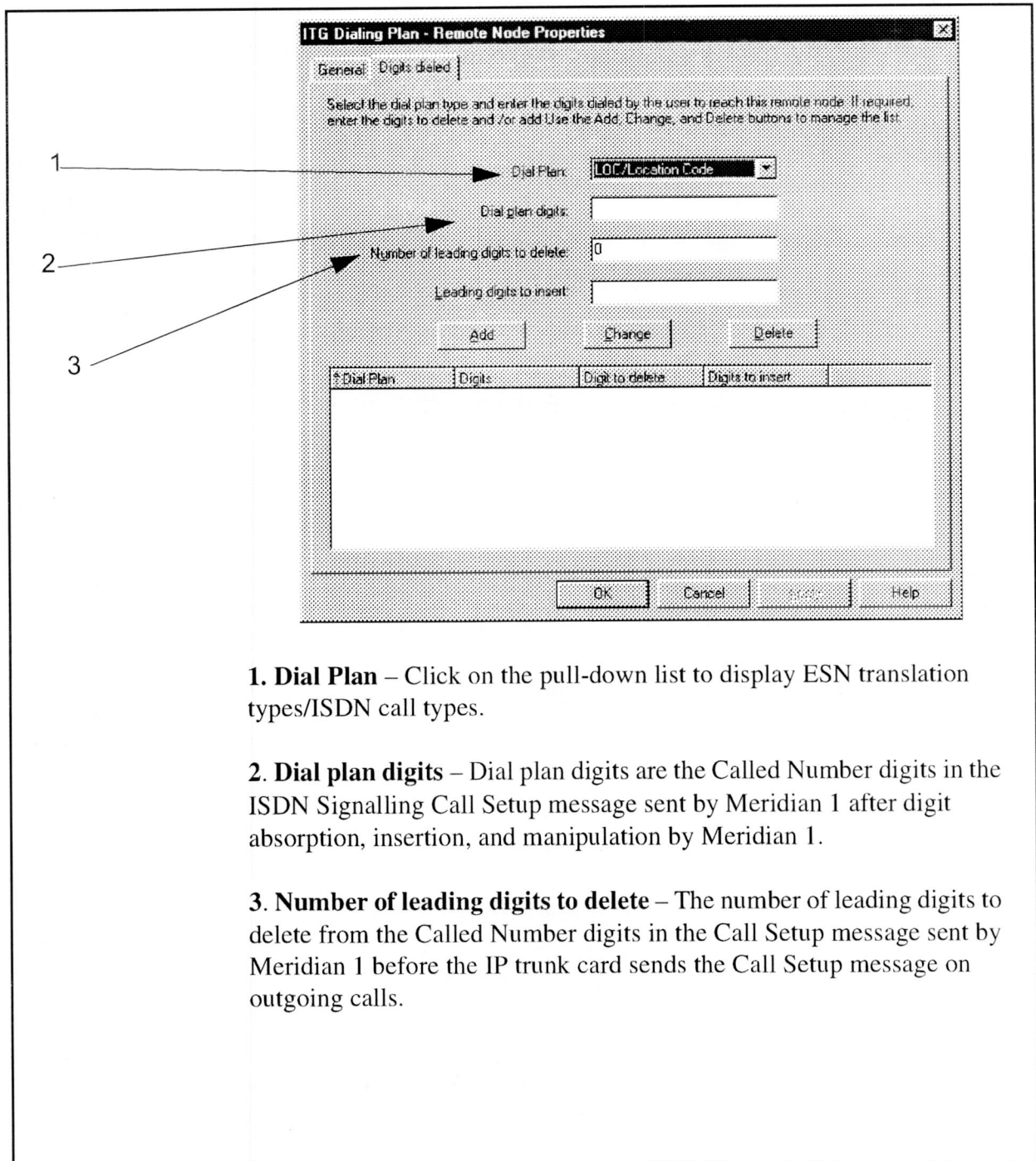
Note: Two sets of digits are “leftwise unique” if one set of digits is not identical to the leading digits of the second set of digits. For example, 011 and 0112 are not leftwise unique; 011 and 012 are leftwise unique.

- 4 Enter the number of leading digits to delete or insert, if required, for digit manipulation on outgoing calls using this ESN translation to this destination node.

Note 1: The digit manipulation defined in the Digits dialed tab of the ITG Dialing Plan – Remote Node Properties window does not apply to the Destination Number of the Facility messages for non-call-associated signalling for MCDN features. These features include: NRAG, NMS, NACD, and NAS.

Note 2: Digit manipulation in the Digits dialed tab can be used as required for destination nodes with node capability H.323 V2, and also for destination nodes with node capability SL1, SL1 ESN5, ESGF, or ISGF for ESN translation Dial Plan digits that are not used for non-call-associated signalling.

Figure 54
ITG Dialing Plan - Remote Node Properties window - Digits dialed tab



- 5 To add the ESN translation Dial Plan digits for this destination node, click **Add**.
- 6 Click **Apply**.
- 7 Repeat steps 7 through 11 until all the ESN translation Dial Plan digits for this destination node have been added.
- 8 Click **OK**.
The Dialing Plan window is displayed with the added dialing plan entries.
- 9 Repeat steps 2 through 13 until dialing plan entries for all the destination nodes in the drop down list and all destination nodes Not Defined on this OTM PC have been added.

End of Procedure

Retrieve the IP Trunk 3.0 node dialing plan using OTM

If adding a new node to a large existing network, it is more efficient to retrieve the IP Trunk 3.0 node dialing plan from an existing node. Make the necessary modifications before transmitting the dialing plan to the new node. Follow the steps in Procedure 25 to retrieve the IP Trunk 3.0 node dialing plan.

Important

When OTM 2.0 is launched, it launches its own FTP service. Other FTP services, such as those found in Windows NT4 and Windows 2000 (which are launched by default) must be turned off, or OTM 2.0 will not work properly.

Procedure 25

Retrieving the IP Trunk 3.0 node dialing plan using OTM

- 1 In the IP Telephony Gateway – ISDN IP Trunk Main Window, select an existing IP Trunk 3.0 node which has a dialing plan similar to one to be created for the new IP Trunk 3.0 node.
- 2 Ensure that OTM can monitor the card state of Leader 0 in the existing node from which the dialing plan is being retrieved. Record the Management IP address of Leader 0 on the existing node.
- 3 Select the new node and double-click to open its Node Properties sheet.

- 4 Click the **Configuration** tab. Record the Management IP address of Leader 0 on the new node.
- 5 On the **Configuration** tab, change the Management IP address of Leader 0 on the new node. Enter the Management IP address of the Leader 0 card on the existing node recorded in Step 2.
- 6 Click **Change** and then click **OK**.
- 7 Select the new node in the upper part of the IP Telephony Gateway - ISDN IP Trunk window.
- 8 Select menu **Configuration | Synchronize | Retrieve** to open the ITG Retrieve Options window.
- 9 Check only the **Dialing Plan** check box if the community name for both the existing and new nodes is the same.

Check the **Dialing Plan** check box and the **Prompt user for community name** check box if the community name for both the existing and new nodes are different. A dialog box appears. Enter the new node's community name.
- 10 Click **Start Retrieve** and monitor progress in the Retrieve control field. Ensure the dialing plan is retrieved successfully and added to the OTM database.
- 11 Click **Close** to close the ITG Retrieve Options window and return to the IP Telephony Gateway - ISDN IP Trunk Main window.
- 12 Select the new node and double-click to open its Node Properties sheet.
- 13 On the **Configuration** tab, change the Management IP address of Leader 0 on the new node. Enter the correct Management IP address of the Leader 0 card on the new node.
- 14 Click **Change** and then click **OK**.
- 15 Select menu **Configuration | Node | Dialing Plan** to open the ITG Dialing Plan window.
- 16 Inspect the retrieved dialing plan for the new node and make any necessary modifications. Double-click on an dialing plan entry to inspect its property sheet. To save modifications, click **Apply** and then **OK**.

From the **View** menu, the option is available to view by **Digits dialed** or **Remote Nodes**.

End of Procedure

Transmit IP trunk card configuration data from OTM 2.0 to the IP trunk cards

IP Trunk 3.0 nodes and IP trunk cards are configured in the OTM ITG ISDN IP Trunk application and then transmitted to the IP trunk cards. The configuration data is converted by OTM to text files. The IP trunk cards then obtain the configuration files from OTM using an FTP server on OTM 2.0.

Important

When OTM 2.0 is launched, it launches its own FTP service. Other FTP services, such as those found in Windows NT4 and Windows 2000 (which are launched by default) must be turned off, or OTM 2.0 will not work properly.

Before configuration data is transmitted

Perform the following procedures in any order before transmitting configuration data:

- Install the IP trunk cards in the Meridian 1 IPE modules or cabinets and cable them to the TLAN and ELAN Ethernet hubs, Ethernet switches, and IP routers.
- Configure the IP Trunk 3.0 data in the Meridian 1. Disable the IP trunk cards in LD 32.
- Configure the IP Trunk 3.0 data in OTM 2.0.
- Connect a local RS-232 terminal to the serial maintenance port to set the Leader 0 IP address. Under certain conditions, the local terminal is required to configure IP routing table entries in the Leader 1 IP trunk card and each of the Follower cards.
- Connect the OTM PC to the local ELAN subnet or to a remote subnet across the LAN/WAN from a remote subnet.

Set the Leader 0 IP address

Follow the steps in Procedure 26 on page 323 to configure the IP address of the Leader 0 IP trunk card, using the ITG shell Command Line Interface (CLI).

Procedure 26

Setting the Leader 0 IP address

- 1 To access the ITG shell, connect a OTM 2.0 PC to the RS-232 serial maintenance port on the faceplate of the Leader 0 IP trunk card through an NTAG81CA PC Maintenance cable. If required, use an NTAG81BA Maintenance Extender cable to provide an extension between the NTAG81CA PC Maintenance cable and the OTM 2.0 PC.

Alternatively, connect the NTAG81BA Maintenance Extender cable to the female DB-9 connector of the NTCW84KA Management Port, DCH, and Serial I/O cable for DCHIP cards, or the NTMF94EA ELAN, TLAN, RS-232-ports cable for non-DCHIP cards, to create a more permanent connection to the IP trunk card serial maintenance port.

Note: Never connect two terminals to the faceplate and I/O panel breakout cable serial maintenance port connectors at the same time.

- 2 Use the following communication parameters for the TTY terminal emulation on the OTM PC:
 - 9600 baud
 - 8 bits
 - no parity bit
 - 1 stop bit

When a new IP trunk card starts up and displays "T:20" on the 4-character display, the IP trunk card begins sending BOOTP requests on the ELAN. A series of dots appears on the TTY.

- 3 Type **+++** to bring up the ITG shell CLI prompt:

...+++

When prompted to login, enter the default username and password as:

VxWorks login: **itgadmin**

Password: **itgadmin**

ITG>

- 4 When the ITG shell prompt appears on the TTY, enter the IP address for the Leader card:

Wait until the display shows "T:21," then enter:

ITG> **setLeader "xxx.xxx.xxx.xxx",**
"yyy.yyy.yyy.yyy", "zzz.zzz.zzz.zzz"

Where:

- "xxx.xxx.xxx.xxx" is the Management IP address of Leader 0 on the ELAN,
- "yyy.yyy.yyy.yyy" is the Management Gateway (router) IP address on the ELAN. If the OTM PC is connected locally to the LAN and there is no management LAN gateway, then the Gateway IP address is "0.0.0.0".
- "zzz.zzz.zzz.zzz" is the subnet mask for the management IP address of Leader 0 on the ELAN.

Note 1: All ITG shell commands are case-sensitive. A space separates the command from the first parameter. The three parameters must each be enclosed in quotation marks and there must be a comma and no spaces separating the three parameters.

Note 2: The **Management Gateway (router) IP address** is used on reboot to create the IP route table default network route only if
(1) there is no active leader that has this card's management MAC address in its node properties file and
(2) this card's node properties file is empty (size 0 Kb).

Note 3: IP addresses and subnet masks must be entered in dotted decimal format.

Note 4: If the network administrator has provided the **subnet mask** in CIDR format, convert it to dotted decimal format before entering it. For example: 10.1.1.1/20 must be converted to IP address 10.1.1.1 with subnet mask 255.255.240.0. To convert subnet mask from CIDR format to dotted decimal format refer to "Subnet mask conversion from CIDR to dotted decimal format" on page 581.

5 Press **Enter**.

6 Press the reset button on the faceplate to reboot the Leader 0 IP trunk card.

After the reboot is completed, the Leader 0 card is in a state of "backup leader". The faceplate display shows "BLDR." It cannot yet be in a state of "active leader", until the node properties have been successfully transmitted from OTM 2.0 to the Leader 0 card.

End of Procedure

Backup Leader installation for IP Trunk 3.0

To install a Backup Leader in an IP Trunk 3.0 node, follow the steps in Procedure 27 on page 326.

Procedure 27

Installing a Backup Leader in IP Trunk 3.0

- 1 Ensure both IP trunk cards are running the same version of software. The software version is displayed when logging into the IP trunk cards. The software version can also be displayed by typing the command **swVersionShow** at the ITG CLI interface.
- 2 If the software versions are different, follow the upgrade erase procedure. Download the software from www.nortelnetworks.com home page. Follow the links to Customer Support and Software Distribution or go to www.nortelnetworks.com/support. If problems are encountered, please contact the support group or GNTS.
- 3 Ensure the D-channel is configured to handle the extra B-channels that are installed. ISLM = 382 max.
- 4 Use NTMF94 cables for ITG-Pentium 24-port trunk cards with a DCHIP card installed. Use NTCW84 cables for ITG-Pentium 24-port trunk cards which do not have a DCHIP card installed.

Use an A0852632 L-adapter for Succession Media Card 32-port trunk cards. If the Succession Media Card 32-port trunk card has a DCHIP card installed, use the DCHIP cable assembly NTMF29BA along with the L-adapter.

- 5 In OTM, in the same Node as Leader 0, configure Leader 1. Ensure the correct MAC address, ELAN (management), and TLAN (voice) addresses assigned for the Backup Leader (Leader 1) are used, and add them. The ELAN addresses must be on the same subnet for all cards. Though on a different subnet than the ELAN addresses, TLAN addresses must also be on the same subnet. The MAC address used must always be for the ELAN. The MAC address for the Succession Media Card 32-port trunk card is printed on the IP trunk card faceplate under **ELAN**. The MAC address for the ITG-Pentium trunk card is printed on the card faceplate under **MOTHERBOARD**.
- 6 If the card (Leader1) has been configured previously, perform the Clear Leader command at the ITG CLI interface. When this IP trunk card is rebooted, it comes up as a Follower/BLDR card. All configuration data is cleared on the card. It is not necessary to use the **setLeader** command.

- 7 Disable Leader 0 and Leader 1 from the Meridian interface. Disable the IP trunk card at the Meridian 1 CLI to ensure it is disabled, even if the LED on the IP trunk card is lit. For information on how to disable the IP trunk card from the Meridian 1 interface, see "Meridian 1 system commands – LD 32" on page 490.
- 8 From OTM, transmit the NODE PROPERTY, CARD PROPERTY, and Dialing Plan to the active leader and to all disabled IP trunk cards. This action is successful to Leader 0, but fails to Leader 1, as Leader 1 does not yet have an IP address.
- 9 Remove Leader 1 from the Meridian 1 backplane.
- 10 Reboot Leader 0.
- 11 When Leader 0 is fully rebooted, push Leader 1 back into position.
- 12 Leader 1 sends a BOOTP request to Leader 0. Leader 0 then sends a message back to Leader 1 which contains Leader 1's IP address. Leader 1 reboots itself. Leader 1 then comes back as a BLDR. Depending on the network and configuration, Leader 1 can reboot itself up to 3 times.
- 13 Enable the Leader 0 in the Meridian 1 interface.
- 14 Transmit the Card Property and Dialing Plan (but not NODE Property) to Leader 1 from OTM. Reboot Leader 1 again.
- 15 When fully rebooted, enable Leader 1. If D-channel messaging is enabled, all the channels associated with this card give a Restart message.

All channels should now be IDLE on the LDR and BLDR in the system.
- 16 If both IP trunk cards become the LDR, then a network problem has occurred, as BLDR is not receiving/responding to a PING message. To verify, connect the TLAN of both IP trunk cards to a basic hub and reboot the card. The IP trunk card must be BLDR. The LDR pings from the Node IP address on the TLAN to BLDR almost continuously. The Link light is continuously lit on the front of the IP trunk card. The traffic light blinks when the Ping message is sent (with no other traffic active on the cards). The lights on the front of an IP trunk card represent the state of the TLAN.

End of Procedure

Transmit the node properties, card properties and dialing plan to Leader 0

Verify that the IP trunk cards are disabled in LD 32 in the Meridian 1 before transmitting card properties.

Note: It is necessary to disable IP trunk cards whenever transmitting card properties or new software.

Use the OTM Maintenance Windows, the OTM System Passthru terminal, or a Meridian 1 system management terminal directly connected to a TTY port on the Meridian 1. Use the LD 32 DISI command to disable the IP trunk cards when idle. In the OTM IP Telephony Gateway – ISDN IP Trunk main window, select **View | Refresh** and verify that the card status is showing “Disabled”. If the card status is showing “unequipped”, configure the card in LD 14.

Procedure 28

Transmitting the node properties, card properties and dialing plan to Leader 0

- 1 From the **OTM Navigator** window, double-click the **ITG ISDN IP Trunks** icon from the **Services** folder. The IP Telephony Gateway - ISDN IP Trunk Main window opens.
- 2 Select the IP Trunk 3.0 node for which the properties are to be transmitted from the list in the upper part of the window.
- 3 Select Leader 0 from the list in the lower part of the window.
- 4 In the IP Telephony Gateway - ISDN IP Trunk Main window, select menu **Configuration | Synchronize | Transmit**.
- 5 Leave the radio button default setting of **Transmit to selected nodes**. Check the **Node Properties**, **Card Properties** and **Dialing Plan** check boxes.
- 6 Click the **Start Transmit** button.

Monitor progress in the **Transmit Control** window. Confirm that the Node Properties, Card Properties and Dialing Plan are transmitted successfully to the Leader 0 IP trunk card TN. At this point, it is normal for transmission to Leader 1 and Follower cards to fail.
- 7 When the transmission is complete, click the **Close** button.

- 8 Reboot the Leader 0 IP trunk card.

End of Procedure

Verify installation and configuration

To verify installation and configuration, check the IP trunk card faceplate displays.

After successfully rebooting, the Leader 0 card is now fully configured with the Node Properties of the node and enters a state of “Active Leader”. The faceplate display shows “LDR”.

The Leader 1 card is now autoconfigured as a Leader, reboots automatically, and enters the state of “Backup Leader”. The faceplate display shows “BLDR”.

Any Follower cards are now auto-configured with their IP addresses and their display shows “FLR”.

If a OTM PC is on the local ELAN subnet, it should now be in communication with all cards in the IP Trunk 3.0 node.

Observe IP Trunk 3.0 status in OTM 2.0

Follow the steps in Procedure 29 to observe the IP Trunk 3.0 status in OTM 2.0.

Procedure 29

Observing the IP Trunk 3.0 status in OTM 2.0

- 1 From the OTM IP Telephony Gateway - ISDN IP Trunk Main window, select menu **View | Refresh** and verify that the card status is showing “enabled” or “disabled”, depending on the card status in the Meridian 1. See Figure 55 on page 331. If any cards show “not responding”, verify the following:
 - a. the management interface cable connection to the ELAN
 - b. the voice interface cable connection to the TLAN

- c. the management MAC addresses that were entered previously on the "Configuration" tab of the Node Properties, while adding the IP Trunk 3.0 node on OTM 2.0
- d. IP addresses

Figure 55
IP trunk card status

Card role	Card state	Nodes in fallback	Card synch status	Dialing plan synch.	Management IP	Voice IP	Voice LAN gatew.	MAC address
Leader0	Enabled - Active	0	Transmitted	Transmitted	47.11.215.184	192.168.0.3	192.168.0.3	00:60:38:8E:29:50
Leader1	Enabled - Standby	0	Transmitted	Transmitted	47.11.215.185	192.168.0.5	192.168.0.5	00:60:38:8D:E3:76

For Help, press F1

Full access

Note: If the IP Trunk 3.0 Node is being installed from a OTM 2.0 PC on a remote subnet, and communication with the Leader 1 and the Follower cards is not possible after transmitting the node properties, card properties and dialing plan to Leader 0 and rebooting the Leader 0 card, this means that the Leader 1 and the Follower cards are unable to communicate back to the remote OTM PC. This is usually due to the fact that the IP trunk card no longer defaults to communicating with the same router as the one used by OTM 2.0. By default, IP traffic is directed to the TLAN router, as most IP traffic uses the TLAN. If the OTM 2.0 PC is on the ELAN and the ELAN is separate from the TLAN, there probably is no routing table entry to route IP traffic meant for the OTM 2.0 PC IP address to that ELAN router.

This can be corrected by connecting a local terminal to the maintenance port on the faceplate of the Leader 1 and Follower cards. Use the ITG shell command "routeAdd" on Leader 1 and each Follower card to add a new IP route for the remote OTM PC subnet that points to the ELAN Gateway (router) IP address. Repeat this step every time a card is reset until the card properties, which contain the card routing table entry IP addresses, have been successfully transmitted to each card.

ITG> routeAdd "xxx.xxx.xxx.xxx", "yyy.yyy.yyy.yyy",

where:

xxx.xxx.xxx.xxx is the IP address of the remote OTM PC and
yyy.yyy.yyy.yyy is the IP address of the management gateway on the ELAN.

Press **Enter**.

- 2 Verify that the TN, management interface MAC addresses, and IP addresses are configured correctly for each IP trunk card. Select any card in the IP Trunk 3.0 node in the OTM ITG – ISDN IP Trunk main window and select menu **Configuration | Node | Properties** from the drop-down menus. Compare the values displayed on the “General” tab and the “Card Configuration” tab with those on the IP Trunk 3.0 Installation Summary Sheet. The ITG – Transmit Options dialog box appears.
- 3 Correct errors and retransmit Node Properties.
- 4 Reboot all cards for which Node Properties have changed.

End of Procedure

Transmit card properties and dialing plan to Leader 1 and Follower cards

Verify that the IP trunk cards are disabled in the Meridian 1 before transmitting card properties.

Note: Disable IP trunk cards when transmitting card properties or new software.

Use the OTM 2.0 Maintenance Windows, the OTM 2.0 System Passthru terminal, or use a Meridian 1 system management terminal directly connected to a TTY port on the Meridian 1. Wait for the NPR0011 message, which indicates that all units on each card are disabled. Use the LD 32 DISI command to disable the IP trunk cards when idle. In the IP Telephony Gateway - ISDN IP Trunk Main window, select **View|Refresh** and verify that the card status is showing “Disabled”. If the card status shows “unequipped”, configure the card in LD 14.

Follow the steps in Procedure 30 to transmit the card properties and dialing plan to the Leader 1 and Follower IP trunk cards.

Procedure 30

Transmit card properties and dialing plan to Leader 1 and Follower cards

- 1 Select the IP Trunk 3.0 node for which properties are to be transmitted from the list in the upper part of the window.
- 2 Select Leader 0 from the list in the lower part of the window.

- 3 In the IP Telephony Gateway - ISDN IP Trunk Main window, select menu **Configuration | Synchronize | Transmit**.
- 4 Keep the radio button default setting of **Transmit to selected nodes**. Check the **Card Properties** and **Dialing Plan** check boxes.
- 5 Click the **Start Transmit** button.
- 6 Monitor progress in the **Transmit Control** window. Confirm that the Card Properties and Dialing Plan are transmitted successfully to all the IP trunk cards, which are identified by TNs.
- 7 When the transmission is complete, click the **Close** button.
- 8 Use the LD 32 ENLC command to enable the IP trunk cards in the IP Trunk 3.0 node.
- 9 In the IP Telephony Gateway - ISDN IP Trunk Main window, select **View | Refresh**. The card status should now show "Enabled."
- 10 Verify the TN, management interface MAC address, IP addresses, and D-Channel for each Succession Media Card 32-port and ITG-Pentium 24-port trunk card. Compare the configuration data with the data on the IP Trunk 3.0 Installation Summary Sheet.

End of Procedure

Once the Card Properties and Dialing Plan have been successfully transmitted, the new Card Properties and Dialing Plan are automatically applied to each IP trunk card. The IP Trunk 3.0 node is now ready to make test calls if IP Trunk 3.0 and the ESN data have been configured on the Meridian 1.

Set date and time for the IP Trunk 3.0 node

Follow the steps in Procedure 31 to set the date and time on the IP Trunk 3.0 node in order to have correct time and date stamps in Operational Measurement (OM) reports, RADIUS Call Accounting reports, error messages and error and trace logs.

Procedure 31

Setting the date and time for the IP Trunk 3.0 node

- 1 Select the IP Trunk 3.0 node for which the date and time is to be set from the list in the upper part of the IP Telephony Gateway - ISDN IP Trunk Main window.
- 2 Double-click on Leader 0 from the list in the lower part of the Main window. The ITG Card Properties Maintenance tab appears.
- 3 Click on the **Set Node Time** button.
- 4 Set the correct date and time.
- 5 Click **OK**.

The clock is updated immediately on the Active Leader card (Leader 0 or Leader 1), which in turn updates the other cards in the IP Trunk 3.0 node.

End of Procedure

Change the default ITG shell password to maintain access security

Follow the steps in Procedure 32 to change the default user name and password when installing the IP Trunk 3.0 node to maintain access security. The ITG user name and password protects maintenance port access, Telnet, and FTP access to the Succession Media Card 32-port and ITG-Pentium 24-port trunk cards over the LAN.

Procedure 32

Changing the default ITG shell password

- 1 Select the new IP Trunk 3.0 node in the upper part of the IP Telephony Gateway - ISDN IP Trunk Main window.
- 2 For each card in the node, right-click on the card and select **Telnet to ITG Card** from the right-click menu.

The Telnet window appears with the VxWorks prompt.

- 3 When prompted to login, enter the default username and password as:

VxWorks login: **itgadmin**

Password: **itgadmin**

ITG>

- 4 Use the command **shellPasswordSet** to change the default user name and password for Telnet to ITG shell and FTP to the IP trunk card file system. The default user name is **itgadmin** and the default password is **itgadmin**.

Enter the following information when prompted:

Enter current username: **itgadmin**

Enter current password: **itgadmin**

Enter new username: *new username*

Enter new password: *new password*

Enter new password again to confirm: *new password*

- 5 Record the new user name and password and transmit to authorized network security personnel.
- 6 Repeat procedure for all cards in the node.

End of Procedure

If the entire sequence of commands is successfully entered, the system response **value = 0 = 0x0** is displayed. The new user name and password are now stored in the non-volatile RAM on the IP trunk card and are retained even if the card is reset, powered-off, or on.

To reset the ITG shell password to its default setting, see “Reset the default ITG shell password” on page 475.

Change default ESN5 prefix for non-ESN5 IP telephony gateways

Follow the steps in Procedure 33 to configure an ESN5 prefix for the non-ESN5 IP telephony gateways by using the “esn5PrefixSet” command from the ITG shell CLI. The default esn5 prefix (100) corresponds to NCOS 00. If NCOS 00 does not allow access to all the required trunk facilities, change the default ESN5 prefix to work with the established NCOS plan in the customer’s network. Refer to “ESN5 network signaling” on page 289. Perform this procedure on every card in the node.

Procedure 33

Changing the default ESN5 prefix for non-ESN5 IP telephony gateways

- 1** Select the new IP Trunk 3.0 node in the upper part of the IP Telephony Gateway - ISDN IP Trunk Main window.
- 2** For each IP trunk card in the node, right-click on the IP trunk card and select **Telnet to ITG Card** from the right-click menu.

The Telnet window appears with the VxWorks prompt:

- 3** When prompted to login, enter the default (or user-modified) login and password.

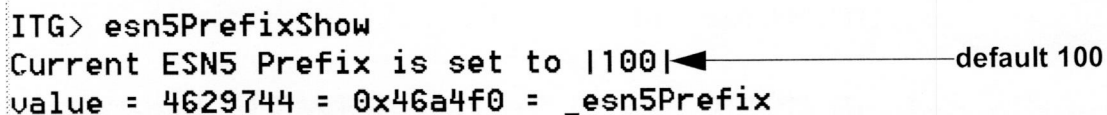
VxWorks login: **itgadmin**

Password: **itgadmin**

ITG> **esn5PrefixShow**

See Figure 56 on page 336.

Figure 56
esn5PrefixShow



```
ITG> esn5PrefixShow
Current ESN5 Prefix is set to 1100|
value = 4629744 = 0x46a4f0 = _esn5Prefix
```

default 100

- 4 At the ITG prompt, enter >esn5PrefixSet "1xx" where xx = the NCOS value. In Figure 57 on page 337, the default value was changed from NCOS 00 to 03..

Figure 57
esn5PrefixSet

```
ITG> esn5PrefixSet "103"  
value = 0 = 0x0  
ITG> esn5PrefixShow  
Current ESN5 Prefix is set to |103|  
value = 4629744 = 0x46a4f0 = _esn5Prefix
```

End of Procedure

Check and download IP trunk card software in OTM 2.0

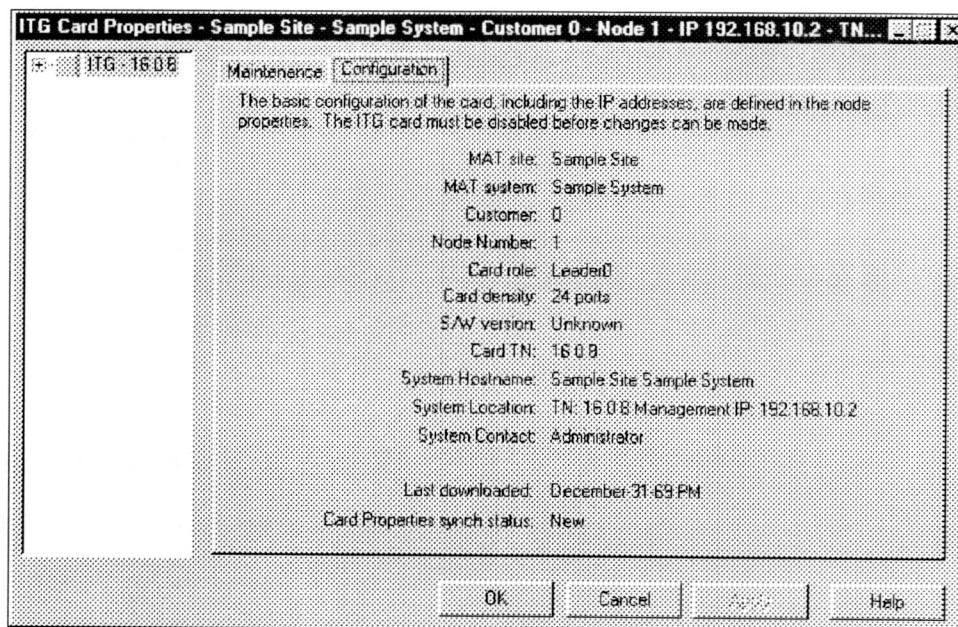
Follow the steps in Procedure 34 to check the software version of the IP trunk cards in a new IP Trunk 3.0 node. All cards must have same version. To ensure proper IP Trunk 3.0 network operation, Nortel Networks recommends that all network nodes have the same software version. Verify that the software release on each card is the latest recommended software release for IP Trunk 3.0 by connecting to a Nortel Networks website that contains the latest software versions for the NTVQ90BA Succession Media Card 32-port and the NT0961 ITG-Pentium 24-port trunk card.

Procedure 34

Checking the IP trunk cards software version

- 1 From the IP Telephony Gateway - ISDN IP Trunk Main window, click on the new node.
- 2 For each card in the node, starting with Leader 0, double-click on the card entry in the lower half of the window. The Card Properties window appears.
- 3 Click **Configuration** tab and record **S/W version**, **card density** and **TN** for each card in the new node. See Figure 58 on page 339.

Figure 58
Properties configuration tab



- 4 Check the Nortel Networks website to find the latest recommended IP Trunk 3.0 software release.
 Go to www.nortelnetworks.com. Follow the links to Customer Support and Software Distribution or go to www.nortelnetworks.com/support.
- 5 Click **Download Software**. Compare the IP trunk card Properties software version to the version listed in the **Release** column.
 - a. If versions match, software upgrade is not required. Turn to "Configure OTM Alarm Management to receive SNMP traps from the IP trunk cards" on page 345.
 - b. If versions are different, go to step 6.
- 6 Fill in the **Name**, **Phone number** and **Company** fields. Click the **Download Current Release** button. The ITG Software Download Request Form window appears.
- 7 Download software packages and associated release notes as follows:

- a. For Succession Media Card 32-port trunk cards, download the **Software Package for Release IP Trunk 3.0**.
 - b. For ITG-Pentium 24-port trunk cards, download the **Software Package for Release IP Trunk 3.0**.
- 8 When prompted, select **Download**. Record the file name and location of downloaded software on the OTM 2.0 PC.

End of Procedure

Now the new IP trunk card software is ready to be transmitted from OTM 2.0 to the IP trunk cards.

Transmit new software to the IP trunk cards

Verify that the IP trunk cards are disabled in the Meridian 1 before transmitting new card software.

Note: Disable the IP trunk cards when transmitting card properties or new software.

Use the OTM Maintenance Windows, the OTM System Passthru terminal, or a Meridian 1 system management terminal directly connected to a TTY port on the Meridian 1.

Use the LD 32 DISI command to disable the IP trunk cards when idle. NPROG indicates that all units on the card have been disabled.

In the OTM IP Telephony Gateway - ISDN IP Trunk main window, select **View | Refresh** and verify that the card status is showing "Disabled". If the card status shows "unequipped", configure the card in LD 14.

Follow the steps in Procedure 35 on page 341 to transmit the new software to the IP trunk cards.

Procedure 35**Transmitting new software to the IP trunk cards**

- 1** Open OTM 2.0. Click on **Services** and launch the ITG ISDN IP Trunks application.
- 2** Select the node to upgrade from the list in the upper half of the IP Telephony Gateway - ISDN IP Trunk main window.
- 3** Select node or cards for software transmission according to card density:
 - a.** If all cards in the node have same card density (24-port or 32-port), upgrade all the cards together by transmitting to the selected node. Click the new node in the upper half of the IP Telephony Gateway - ISDN IP Trunk Main window.
 - b.** If a mix of Succession Media Card 32-port and ITG-Pentium 24-port trunk cards is in the same IP Trunk 3.0 node, then select all cards of the same density in the lower half of the Main Window. Hold down the **Ctrl** key while making individual card selections.
- 4** Select menu **Configuration/Synchronize/Transmit**. The **ITG - Transmit Options** dialog box appears.
- 5** If transmitting new software to a node, choose steps **a** or **b**.
 - a.** If transmitting new software to a node containing cards of the same density, ensure the following:

Make sure **Transmit to selected nodes** is selected.

Check **Card software** checkbox.

Click **Browse** and locate the software file for the card density of the selected node.

Click **Start Transmit**. The software is transmitted to each card in turn and burned into the flash ROM on the IP trunk card. Monitor the progress of the card software transmission in the Transmit Control window. IP Trunk 3.0 indicates success or failure of card software transmission by card TN. Scroll to verify that the

transmission was successful for all card TNs. The cards continue to run the old software until rebooted.

Click the **Close** button and go to step 6.

- b. If transmitting new software to a node containing a mix of card densities, ensure the following:

Make sure **Transmit to selected cards** is selected.

Check **Card software** checkbox.

Click **Browse** and locate the software file for the card density of the selected cards (24-port or 8-port).

Click **Start Transmit**. The software is transmitted to each card in turn and burned into the flash ROM on the IP trunk card. Monitor the progress of the IP trunk card software transmission in the Transmit Control window. IP Trunk 3.0 indicates success or failure of card software transmission by card TN. Scroll to verify that transmission was successful for all card TNs. The IP trunk cards continue to run the old software until rebooted.

Click **Close** button.

Repeat steps 3b, 4 and 5b for the other card density.

- 6 Reboot each IP trunk card that received transmitted software, so that the new software can be applied. Start the rebooting with Leader 0, then Leader 1, and finally the follower cards.

Double-click on card in the lower part of the IP Telephony Gateway - ISDN IP Trunk Main window. The Card Properties Maintenance tab appears. Click **Reset** to reboot the card. Click **OK**.

Note: Alternatively, reset the cards by pressing the "Reset" button on the card faceplate using a pointed object.

- 7 From the IP Telephony Gateway - ISDN IP Trunk Main window, select the new node. Select menu **View/Refresh/Selected** or press F5.
- 8 After all IP trunk cards have been reset and have successfully rebooted, the **Card state** column shows **disabled:active** for Leader 0, **disabled:standby** for Leader 1, and **disabled** for Followers.
- 9 Double-click each upgraded card. Click the **Configuration** tab of the Card Properties window and check the **S/W version**.

- 10 Use the LD 32 ENLC command to re-enable the IP trunk cards.

End of Procedure

The software upgrade procedure is complete.

Upgrade the DCHIP PC Card

Follow the steps in Procedure 36 to upgrade the DCHIP card.

Procedure 36

Upgrading the DCHIP card

- 1 Copy the DCHIP PC Card driver to the /C: drive of the Leader card using FTP.
- 2 In the IP Telephony Gateway - ISDN IP Trunk Main window, right-click on the DCHIP card and select **Telnet to ITG Card** from the right-click menu.
The Telnet window appears with the VxWorks prompt.
- 3 When prompted to login, enter the default username and password as:
VxWorks login: **itgadmin**
Password: **itgadmin**
ITG>
- 4 Disable the ITG-Pentium 24-port or Succession Media Card 32-port trunk card in LD 32 (DISI lsc). Wait for the NPRxx message.
- 5 Use the command **DCHdisable** to disable the D-channel function on the card.
- 6 Use the command **loader 1, "/C:pcm32.bin"** to transfer the DCHIP PC Card software to the DCHIP PC Card.

Note: The '1' indicates the internal PC Card slot on the DCHIP Card. For the external PC Card Slot, use '0'.

The DCHIP card checks whether or not it is a Leader card.

- The DCHIP PC Card software is downloaded to the Leader card first.
- If it is a Leader card, it copies the DCHIP PC Card software from its own /C: drive.
- If it is not a Leader card, it FTPs the DCHIP PC Card from the Active Leader card. Since the FTP server on the IP trunk card is password

protected, enter the login and password when prompted. If correct, the upgrade of the DCHIP PC Card begins.

End of Procedure

Once the upgrade is complete, the DCHIP card reboots automatically.

Configure OTM Alarm Management to receive SNMP traps from the IP trunk cards

Follow the steps in Procedure 37 to configure OTM Alarm Management to receive SNMP traps from the IP trunk cards. The OTM Alarm Management option must be enabled to perform this procedure. For the procedure to activate SNMP trap generation on the IP Trunk 3.0 node, see “Configure SNMP Traps/Routing and IP addresses tab” on page 309. Enter the IP address of the OTM PC as described in the that procedure.

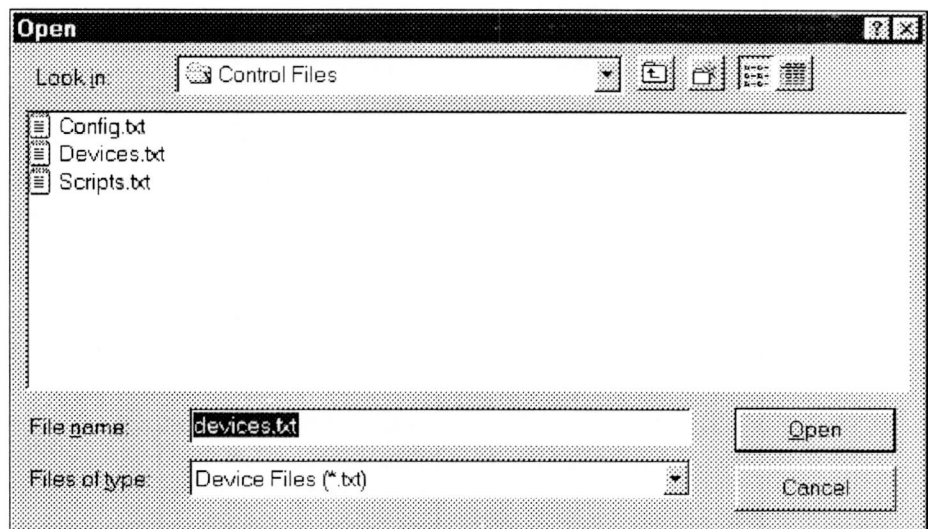
Procedure 37

Configuring OTM ALarm Management to receive SNMP traps from the IP trunk cards

- 1 In the OTM Navigator window select **Utilities | Alarm Notification**. The “OTM Alarm Notification” dialog box appears.
- 2 Select **Configuration | Run Options**. The “Alarm Notification Run Options” dialog box appears.
- 3 Click the **Control Files** tab.
- 4 Click **Devices | Browse**. The “Open” dialog box appears. See Figure 59.

Figure 59

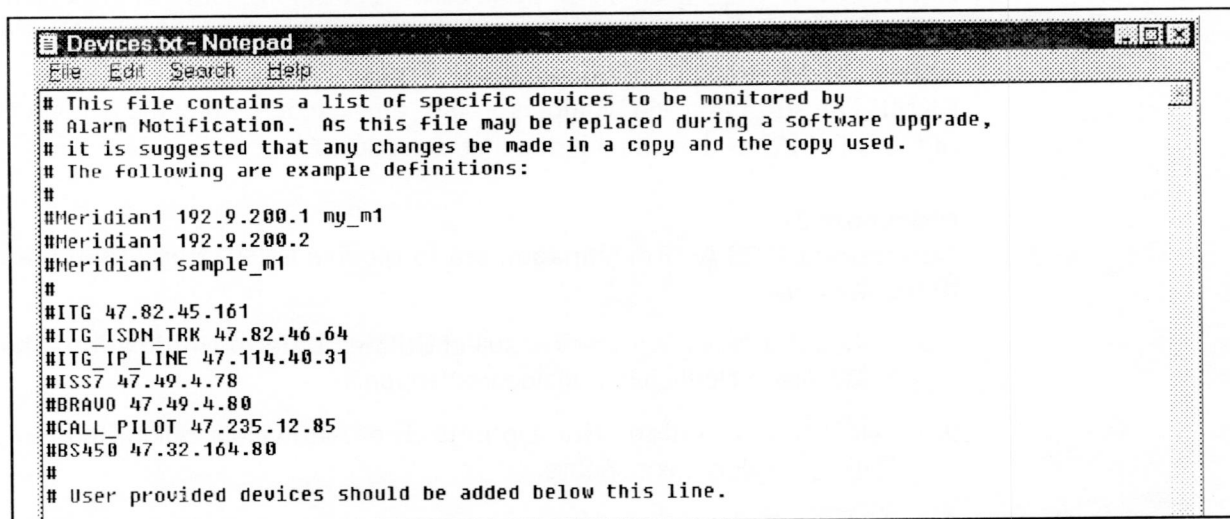
“Open” dialog box



- 5 Select the "Devices.txt" file from the "Control Files" folder and click **Open**. The "Devices.txt" file opens. See Figure 60.

Figure 60

Devices.txt file:



```

# This file contains a list of specific devices to be monitored by
# Alarm Notification. As this file may be replaced during a software upgrade,
# it is suggested that any changes be made in a copy and the copy used.
# The following are example definitions:
#
#Meridian1 192.9.200.1 my_m1
#Meridian1 192.9.200.2
#Meridian1 sample_m1
#
#ITG 47.82.45.161
#ITG ISDN_TRK 47.82.46.64
#ITG_IP_LINE 47.114.40.31
#ISS7 47.49.4.78
#BRAVO 47.49.4.80
#CALL_PILOT 47.235.12.85
#BS450 47.32.164.80
#
# User provided devices should be added below this line.

```

- 6 For each IP trunk card in each monitored IP Trunk 3.0 node, add a line consisting of three fields separated by spaces. Enter the first line beginning underneath the last line that begins with a "#". Lines beginning with "#" are comments and not processed. Do not begin any of the lines defining IP Trunk 3.0 devices with "#".

Table 46

Format of Devices.txt file

Device Type	IP Address	Device Name
ITG	xxx.xxx.xxx.xxx	Site_Leader_0
ITG	xxx.xxx.xxx.xxx	Site_Leader_1
ITG	xxx.xxx.xxx.xxx	Site_Follower_2
Note: The Device Name cannot contain any spaces. Use a descriptive name for the Meridian 1 site where the IP Trunk 3.0 node is located.		

- 7 Click **File | Save**.

- 8 In the Alarm Notification Run Options window, click **OK**.
OTM Alarm Notification must be restarted whenever Control Files are changed.
- 9 If OTM Alarm Notification is running (a red traffic light is showing on the tool bar), stop it by clicking on the red traffic light on the tool bar. Restart it by clicking on the green traffic light.
- 10 If OTM Alarm Notification is not running (a green traffic light is showing on the tool bar), start it by clicking on the green traffic light to change it to red.
- 11 Enter the **trap_gen** command from the ITG shell. A series of SNMP traps is emitted by the IP trunk card and appears in the OTM Alarm Notification browser window. Verify the device name identifies the correct IP trunk card.

End of Procedure

Make test calls to the remote nodes (ITG Trunk or IP Trunk)

Make test calls to ensure the following:

- The IP Trunk 3.0 system can process calls from each node to a remote node.
- The IP trunk cards are enabled.
- QoS, as defined within the Dialing Plan window, is acceptable.

Check the IP Trunk 3.0 operational report. If fallback to PSTN occurs, examine the IP data network for problems. Also, check the IP trunk cards' dialing plan table and verify that the remote ITG Trunk 2.x or IP Trunk 3.0 node is powered up, configured, and enabled.

